

The Mining Journal

RAILWAY AND COMMERCIAL GAZETTE

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

[The MINING JOURNAL is Registered at the General Post Office as a Newspaper, and for Transmission Abroad.]

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LONDON, SATURDAY, JANUARY 8, 1876.

WITH SUPPLEMENT. PRICE SIXPENCE. PER ANNUM, BY POST, £1 4s.

MR. JAMES H. CROFTS, STOCK AND SHARE BROKER,
No. 1, FINCH LANE, CORNHILL, LONDON, E.C.
Established 1842.

BUSINESS transacted in all descriptions of MINING Stocks and Shares (British and Foreign), Consols, Bonds (Foreign and Colonial), Railways, Miscellaneous, Insurance, Assurance, Telegraph, Shipping, Canal, Gas, Water, and Dock Shares.

BUSINESS negotiated in Stocks and Shares not having a general market value. BUSINESS in all COLLIERIES and IRON Shares, and in the principal WAGON and MANUFACTURING COMPANIES of the NORTH of ENGLAND and SCOTLAND.

Mr. J. H. CROFTS, having now established CORRESPONDING AGENCIES in all the CHIEF TOWNS of the UNITED KINGDOM, is prepared to deal in the various LOCAL Stocks and Shares at close market prices.

Accounts opened for the Fortnightly Settlement.

Monthly and Daily Price Lists issued.

Bankers: City Bank, London; South Cornwall Bank, St. Austell.

SPECIAL DEALINGS in the following, or part:—20 Almada, 12s. 6d.; 30 Asheton, 14s. 6d.; 15 Bog, 7s. 6d.; 20 Bamplyde, 17s. 6d.; 5 Bilson, £104; 20 Cardiff and Swansea, £24; 20 Chapel House, 15s. 6d. (offer wanted); 10 East Caradon, £14; 50 Flagstaff, £1; 10 Great Laxey, £16; 50 Great West Van, 9s. 9d.; 100 Javali, 12s.; 30 Last Chance, 18s. 3d.; 20 Marke Valley, £3; 25 Mwyndy Iron, £1; 25 Parys Mountain, 12s.; 10 Pateley, £5; 25 Pennerley, 31s.; 50 Penstruthal, 8s. 6d.; 100 Plynlimmon; 20 Prince of Wales, 6s.; 10 Roman Gravel, £12; 10 Richmond, £7; 10 South Condurrow, £5 13s. 9d.; 50 Tylwyd, 13s. 6d.; 10 Tankerville, £11 2s. 6d.; 100 Tolima; 10 Thorp's Gawber, £7; 5 Van, £39; 15 West Tankerville, 23s. 9d.; 15 Wheel Crebor, £2; 20 Wheel Grenville, £2 (call paid); 10 West Chiverton, £16 ex div.

BUSINESS in POSITIVE ASSURANCE SHARES.

* Shares sold for forward delivery (one or two months) on deposit of 20 per cent. Business on hand in all the leading TIN, COPPER, and LEAD SHARES.

EGYPTIAN AND TURKISH BONDS.—SPECIAL BUSINESS.
JAMES H. CROFTS, 1, FINCH LANE, LONDON.

RAILWAYS.—SPECIAL BUSINESS. Fortnightly accounts opened on receipt of the usual cover.
JAMES H. CROFTS, 1, FINCH LANE, LONDON.

FOREIGN BONDS.—SPECIAL BUSINESS. Fortnightly accounts opened on receipt of the usual cover.
JAMES H. CROFTS, 1, FINCH LANE, LONDON.

MR. W. H. BUMPUS, STOCK AND SHARE BROKER,
44, THREADNEEDLE STREET, LONDON, E.C.
Transacts business in MINING and COLLIERIES Shares of every description, ENGLISH AND FOREIGN STOCKS, COLONIAL BONDS, RAILWAYS, BANKS, TELEGRAPHS, FINANCIAL AND MISCELLANEOUS SHARES.

And all Securities dealt in on the LONDON STOCK EXCHANGE. Purchases and Sales negotiated in Unmarketable Stocks and Shares. Accounts opened for the Fortnightly Settlement on receipt of the usual cover. References given and required when necessary. A STOCK and SHARE LIST sent FREE on application.

BANKERS—The NATIONAL PROVINCIAL BANK OF ENGLAND, E.C.

SPECIAL BUSINESS in the SHARES of all the principal HOME and FOREIGN MINES at close market prices.

FOR SALE, at prices annexed:—
100 Roman Grav., £12 1/2. 100 Penstruthal, 9s. 25 Westbourne Grove
40 West Maria, 7s. 6d. 15 Grenville, £2 1/2. Drapery & Furnishing Co. (Limited),
20 Ladywell, £2 1/2. 50 Parys Mount, 12s. 6d. offer wanted.
10 Richmond, £7 1/2. 100 Malabar, 5s. 6d.
25 Cathedral, 25s.

MINING INVESTMENTS.

The Shares of several Sound Dividend and Progressive Mines may now be obtained at prices which are very much in favour of purchasers, and Investments made at the present time in this direction will, in all probability, yield very satisfactory results within a comparatively short period. A carefully selected List of Shares, likely to have an early rise in market value, may be had on application.

WILLIAM HENRY BUMPUS, SWORN BROKER.

(Member of McLean's Telegraphic News Exchange.)

SPECIAL.

MR. W. H. BUMPUS is now issuing to his clients and friends "A Table Showing the Highest and Lowest Prices of Stocks and Shares for the Years 1872, 1873, 1874, and 1875: the dates when quoted for the year 1875; and the Dividends paid during each of the past Four Years, with other useful information."

The above has been compiled with the greatest possible care, and will be found one of the most comprehensive and valuable Tables of Reference ever issued.

44, Threadneedle street, E.C., London, January, 1876.

FERDINAND R. KIRK, STOCKBROKER,
5, BIRCHIN LANE, E.C.

SPECIAL BUSINESS in—
Alltami Colliery. Eberhardt. Anglo-Cable.
Chapel House. Cardiff and Swansea. Direct Cable.
Cape Copper. Richmond. Law's Chemical.

Consols, Foreign Bonds, Railways, and every security quoted on "Change bought and sold." Clients giving the usual "cover" can open accounts for the fortnightly settlement. References given when necessary in most of the leading towns of the United Kingdom.

JOHN RISLEY (SWORN), STOCK AND SHARE BROKER,
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Business transacted at the following rates of commission:—Foreign Stocks, 1/4 per cent.; and Mining Shares of £4 each and upwards, 1 1/2 per cent.; under £4, 1s. per share.

MESSRS. W. J. TALLENTIRE AND CO.,
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20, CHANGE ALLEY, CORNHILL, LONDON, E.C.
Transact business in Stock Exchange Securities and Mining Shares of every description, either for immediate cash or the usual bi-monthly settlements, and also afford advice personally or by letter to executors, trustees, capitalists, and investors of every class in the selection of Securities for safe and profitable investment, their experience of the markets, extending over a period of more than sixteen years, together with special facilities for acquiring information, enabling them to act beneficially for clients.

They have established Corresponding Agencies in all the principal towns of the United Kingdom, and are prepared to deal in the various local Stocks and Shares at close prices. Orders per post or telegraph receive prompt attention.

INVESTORS SHOULD APPLY for a copy of Messrs. W. J. TALLENTIRE and Co.'s Circular for December, sent post free. It contains valuable information on Foreign Stocks, Railways, and Mines.

MESSRS. A. ENDEAN, FISHER, AND CO., STOCK AND SHARE DEALERS,
3, LOMBARD COURT, LOMBARD STREET, E.C.

Bankers: London and Westminster, Lothbury.

MR. W. MARLBOROUGH, STOCK AND SHARE DEALER,
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15 Argentine, £2 1/2. 15 Eberhardt, £9 6s. 3d. 100 Prince of Wales, 5s. 9d.
10 Asheton, 15s. 30 Frontino, £1 1/2. 50 Penstruthal, 9s. 6d.
10 Bog, 7s. 6d. 25 Gold Run, 11s. 3d. 60 Parys Mount, 11s.
20 Birnie, £2 1/2. 20 Kingston, 20s. 25 Pennerley, 25s. 9d.
20 Chontales, 11s. 3d. 40 Javali, 12s. 40 Port Phillip, 18s. 6d.
20 Cathedral, 24s. 15 Ladywell, £2 8s. 9d. 20 Richmond, £7 1/2. 3d.
10 Chapel House, £2 6s. 3d. 25 Last Chance, 16s. 25 St. Patrick, 27s. 6d.
15 Chicago, £2 1/2. 20 Marke Valley, £3 1/2. 30 So. Roman Grav., 9s.
10 Colorado, 40s. 6d. 20 New Consols, 25s. 9d. 30 So. Mexican, £4 1/2.
10 Don Pedro, 7s. 9d. 20 New Quebrada, £4 1/2. 50 West Maria, 6s. 6d.
15 East Van, £2 1/2. 75 Old Treburgett, 5s. 3d. 50 Western Andes, £4 1/2.
10 Exchequer Gold, 18s. 20 Pateley Bridge, £4 1/2. 40 W. Tankerville, 25s.
10 Flagstaff, 20s. 6d. 15 Prince Patrick, £3 1/2.

INVESTMENTS IN STOCKS AND SHARES.—
BRITISH AND FOREIGN STOCKS AND SHARES BOUGHT AND SOLD.

List of Prices and other information sent on application.

Bankers: The Alliance Bank (Limited), London.
MR. P. WATSON, 79, OLD BROAD STREET, LONDON, E.C.
(Close to Stock Exchange.)
FINANCIAL OPERATIONS NEGOTIATED.

MR. ALFRED E. COOKE, STOCK AND SHARE DEALER,
76, OLD BROAD STREET, LONDON.
(Established 1853.)

Mr. COOKE is a SELLER of the following SHARES, free of commission:—
35 Cedar Creek. 100 Positive Assurance. 50 Santa Barbara.
100 East Grenville. 45 Penstruthal. 15 Tankerville.
20 East Van. 10 Richmond. 40 Van Consols.
10 Pateley Bridge. 15 Roman Gravel. 20 West Maria.
SPECIAL BUSINESS in the following:—
Cakemore Colliery. Mynydd Gorrdu. West Craven Moor.
Chapel House. Pennant Barytes & Lead. Wye Valley.
Glaisdale. St. Patrick.

Business transacted in all other Mines, Miscellaneous Shares, Railways, and Foreign Stocks on best possible terms.

Mr. COOKE issues daily a list of Stock Exchange Closing Prices, which will be forwarded on application.

STOCK EXCHANGE SPECULATION OR INVESTMENT.—Best information given, and Fortnightly accounts opened. Terms on application.

MR. T. E. W. THOMAS, SHARE BROKER,
3, GREAT WINCHESTER STREET BUILDINGS, E.C.
Established 1857.

The following are the latest prices at which business could be done. Where the difference between the buying and selling price is wide transactions may be effected at an intermediate price:—

Argentine Gold (prem.)	Buyers.	Sellers.	Penstruthal	Buyers.	Sellers.
£1	1 1/2	1 1/4	8s.	10s.	
Birdseye Creek	23 1/2	23	Prince of Wales	4s. 9d.	5s. 3d.
Bog	7s.	5s.	Plynlimmon	8s. 6d.	9s. 6d.
Chapel House	34 1/2	34	Richmond	£7 1/2	£7 1/4
Devon Great Consols	4	4 1/2	Roman Gravel	11 1/2	12
Dolcoath	38	40	Santa Barbara	1 1/2	1 1/4
Don Pedro	6s.	5s.	San Pedro	2 1/2	2 1/4
Eberhardt	3 1/2	3 1/4	South Condurrow	5	5 1/2
East Caradon	1 1/2	1 1/4	Sweetland Creek	2 1/2	2 1/4
East Van	7	7 1/2	Tankerville	10 1/2	11
Exchequer Gold	14s.	16s.	Tinctor	10 1/2	20 1/2
Flagstaff	1	1 1/2	Trebeigh Consols	6s.	8s.
Gawton	3 1/2	3 1/4	Unity Wood	1 1/2	1 1/4
Hingston Down	17s. 6d.	20s.	Van	38	40
Javali	10s.	12s.	Van Consols	1 1/2	1 1/4
Marke Valley	3 1/2	3 1/4	West Chiverton (x.d.)	1	1 1/2
New Quebrada	3 1/2	4 1/2	West Tankerville	1	1 1/2
New Rosario	8s.	9s.	Wheel Agar	2 1/2	2 1/4
Old Treburgett	4s. 6d.	5s. 6d.	Wheel Crebor	2 1/2	2 1/4
Parys Mountain	11s.	12s.	Wh. Kitty (St. Agnes)	2 1/2	2 1/4
Pateley Bridge	4 1/2	5	West Gololphin	1 1/2	1 1/4
Pennerley	1 1/2	1 1/4	West Toldus	60	62

Autumn Circular, containing selected Mining Investments for 1876, now ready, post free for One Penny stamp.

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STOCK AND SHARE BROKER.

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BUILDINGS, BISHOPSGATE STREET, LONDON, E.C.
Some valuable hints as to the purchase of mining shares will be found in Mr. Thompson's "Investment Circular" for Jan. now ready, post free, price 6d.

G. E. SIMPSON, STOCK AND SHARE DEALER,
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SELL the following SHARES, free of commission:—

50 Almada, 12s. 6d.	25 East Van, £2 1/2.	30 Richmond, £7 1/2.
50 Almada, £2 3s. 9d.	15 Eberhardt, £2 1/2.	15 Roman Grav., £11 19 9
40 Argentine, £2 1/2.	50 Hingston, 19s.	50 Sweetland, £3.
70 Birdseye Creek, £2 11s.	75 Javali, 12s.	100 St. Patrick, £1 7s. 6d.
75 Blue Tent, £4 1/2.	40 Ladywell, £2 1/2.	20 Tankerville, £10 17s. 6d.
100 Chapel House, £2 1/2.	50 Marke Valley, £3 11s. 3	10 Van, £39.
50 Chontales, 11s. 9d.	30 Oregon, £4 1/2.	40 Van Consols, £1 13s. 9d.
60 Cedar Creek, 25s. 6d.	70 Pennerley, £1 9s. 3d.	10 West Chiverton, £16.
20 Devon Consols, £4 1/2.	50 Parys Mount, 11s. 3d.	40 W. Tankerville, 25s.

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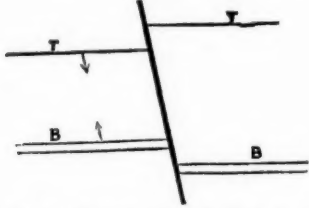
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PROF. SMYTH'S LECTURES ON MINING—No. IX.
[BY OUR SPECIAL REPORTER.]

In a district where you have the lode heaved by a large number of cross-courses, more of less parallel in direction, you may conclude that similar phenomena will attend each case, and so when you have once established the direction in which the heave occurs you may expect to find that repeated, and indeed it would be strange if this were not the case. In this manner you might establish a rule for that district and those particular circumstances, or you might, on the other hand, work out the relations of each case by the method of Schmidt, explained in the last lecture. We need only look at the tabulated statements by Mr. Henwood to see that the relations of right hand and left hand, of smaller angle and greater angle, cannot be adhered to invariably, and that they are applicable only to a particular mine or particular district, where the circumstances are of a similar character. The miners sometimes complicate this matter unnecessarily, by refusing to see any law, or to recognise that one portion of the ground has slipped over the other, and that as a general rule the portion on the hanging side has slipped downwards. When the heave due to the cross-course is accompanied by a considerable lateral movement you may have the curious case of two lodes dipping in opposite directions heaved in the same direction by the cross-course. The evidence as to the occurrence of such lateral movements in the more or less horizontal strata of the slickensides is very satisfactory. It is sometimes regarded with great wonder that a small portion of a lode which has been dislocated by a cross vein should be found on the opposite wall of the latter, facing the main lode, although the broken part has been moved further down. In such cases we must remember that the ground has frequently been opened several times in the same place, the evidence of which we have previously considered; and that it would seem that after the dislocation had occurred a subsequent re-opening gave rise to this portion, which appears to belong to the original lode. To illustrate the influence of dip on the direction of heaves we may take the following case from the 250 fm. level of the Fowey Consols Mine, shown on plan in Fig. 10. The two

Fig. 10.



lodes, T and B, which dip in opposite directions, as shown by the arrows, are moved in opposite directions by the same dislocator, and this is entirely due to the difference in their dip, as may clearly be seen by working it out according to the method of Schmidt. And it will also be seen that in this instance a fixed rule as to turning to right hand or left hand would not hold good for both cases. One of the most interesting cases occurred in the Great Devon Consols Mine, where a large cross-course dislocated the lodes upwards of 80 fms., so much so that fresh shafts had to be sunk, and two portions worked quite separately.

We pass now from these lodes to a series of deposits of ore which put on in some districts many appearances of lodes, but which require to be treated in quite another category. We may meet at the surface of the ground an appearance like that of a lode, but yet we should not be justified in entering upon any extensive workings on the assumption of this—which is, in fact, an irregular repository—being propagated downwards, or horizontally, in the manner of a regular lode. These irregular repositories are what the French commonly call *amas*, and the Germans *Stöcke* (singular *Stöck*). We may consistently divide these into four classes—1. Those which follow the plane of contact of two different rocks, perhaps for a considerable portion of that plane.—2. Those embedded in, or closely united with, igneous or non-stratified rocks.—3. Those associated with stratified rocks, or with rocks which are more or less metamorphic.—4. Those occurring in limestones. This is a division having more of a geognostic than of a geological character, for in the fourth class, for example, the characters we have to consider are common to the whole class of limestones, independent of their relative age. They are frequently noticeable at once as different from lodes in the materials they contain; from a want of regular arrangement in the minerals; for an absence of spaces lined with crystallised minerals, which are seldom found in this class of deposits, their general character being that they contain a large amount of material in a densely aggregated form, frequently crystalline, but usually consisting of very small crystals—e.g. the magnetite of Sweden. They are remarkably free from mixture with other minerals, except those actually embedded in them, as crystals of garnet.

Of irregular deposits at contact we have no remarkable examples in this country, but they may be seen in the continental deposits of iron ore, as in the Harz. Some of the lodes in those districts would appear to present much the same character, but may be distinguished usually by being carried out more regularly and to a greater distance. These occur at the junction of certain porphyries and of clay-slates: appearances of this kind have been also met with in the Harz, near Altenau and Clausthal, and again in the south-east part of Hungary. In this latter district a series of repositories extend over a district of from 30 to 40 miles, and may, I believe, be traced further on to the mountains of Servia: they occur where a series of secondary rocks are brought into contact with a great band of gneiss, which courses through the country in a nearly north and south direction.

Among the irregular repositories in non-stratified rocks we have the *Stockwerke* of the Germans, a number of which occur in North Bohemia and Saxony. Some of these have been worked for tin from a very early period, never producing such great quantities of materials, however, as in our own tin mines. The usual feature is that in a granitic rock, flanked by gneiss or mica schist, a vast number of small veins occur, rendering it advisable to remove large quantities of the rock itself: in doing this it is exceedingly difficult, from the nature of the workings, the nature of the ground, and the oxidation of the rock, to work it with safety. It is said to derive its name from the fact that the workings are in successive levels or stocks. In other districts gold instead of tin may be the mineral disseminated. In Cornwall, near St. Austell, we have a great open working, which has been called a stockwork, but it is not really such, partly because the strings generally run pretty much in the same direction, very much like little veins, and partly because the working of china-clay has led to its forming a great open work. There are one or two other kinds of repositories, of which I can give you nothing but very general statements as to their irregularity, such as the "tin floors" which occur in some parts of Cornwall, at no great distance from or adjoining the lodes. I must refer you to the earlier volumes of the "Transactions of the Royal Geological Society of Cornwall" for very full information about them: at present I do not know that there are any in work. In West Cornwall in the neighbourhood of St. Ives, are some irregular deposits, which have received from the miners the local name of "carbonas," and of which I may say no satisfactory explanation has yet been given. They are generally met with not far from the lodes, but pass off from the latter, the communication between them being, perhaps, only a small film of quartz. They pass off into a kind of pipe, which, generally speaking, has been filled with material, at first nightlike coarse granite, but containing tin throughout. Generally there is a difference noticeable between this material and that of the lode, although there is a close analogy between them: schorl generally forms a prominent constituent of these carbonas. One of

the most remarkable instances occurred at the East Wheal Lovell, where a succession of these irregular repositories, extending much in the direction of the lode, yielded a considerable quantity of ore. It should be observed that sometimes one of these carbonas lies entirely between two levels, being limited above and below. One of the most remarkable in Europe is the Monte Catini Mine, in Tuscany, between Florence and Leghorn, which resulted from the following down of a small tongue of copper ore seen at the surface, and which tongue opened out into a wonderful mass belonging to this class of repositories. The ore is copper glance and bornite, exceedingly free from admixture, and although it is but a small mine it has proved one of the richest in Europe. The adjoining rock is a variety of soft serpentine, termed by the Italians *gabbro rosso*, in many parts exhibiting a brecciated character; it is so suffused with pyrites that in exposed parts where there is not a strong current of air the temperature is exceedingly high. This is the result, I believe, of the oxidation of the pyrites, and is one of the disadvantages connected with the mine.

We come next to the irregular deposits in stratified rocks, and may take as an example the great mine of Rammelsberg, in the Harz, as being the most ancient mine, which has worked continuously from before 1000 A.D., so it is said. The deposit was first met with in the side of a claystone hill, and was found to enlarge downwards, and then to bifurcate. At its widest part it was 350 feet across, and extended about half-a-mile in length. The whole of the deposit is one dense mass of minerals, among which the most notable are different varieties of quartz, and pyrites. No less than 15 different metals have been met with, and a considerable number of them, from gold down to zinc and iron, have been more or less utilised. The great difficulty in these large workings is to support the walls, and in this case the working has been by the method of fire-setting. In this class also come the great deposits of iron pyrites in the south-west of Spain, at Pregon near Seville, and in the adjoining part of Portugal, occurring in the midst of claystone rocks. The district was worked long ago by the Romans for copper ores, which were found in irregular lenticular masses. The present working of pyrites are on so gigantic a scale that it has been found advisable to remove the top, and work the deposit as a large quarry. One of these is capable of supplying ore sufficient to load 400 to 500 ships in a year. The ore is shipped off to Liverpool and other parts for the manufacture of sulphuric acid, &c. The surface action has changed the pyrites from the surface down to a certain depth into the oxide of iron—in fact, into goossan.

The fourth and last class of these irregular repositories comprises those which occur in limestone: the circumstances of these are so varied that they demand a whole course of lectures to treat them fully. A deposit of lead ore of this kind in Flintshire—Fawnog Mines—was first taken to be a regular east and west lode, and a series of shafts was sunk as usual, but the lode was not found. When the deposit was found again, lying between limestone and sandstone, it was taken for a bed, but in fact it was neither lode nor bed, it was really a series of irregular masses. These proved to be very rich, yielding massive pieces of pure galena and cerussite. Evidently the deposit had been introduced subsequently to the formation of both limestone and sandstone, inasmuch as it penetrated into and occupied the joints in each. The "flats" of the North of England district of Alston Moor belong also to this class, where from the sides of the lodes you have masses extending into the limestone wall; generally three of these have been observable and followed for a few feet, or for several yards, into the rock. As these have been in many cases very productive, a lode which flats off into the limestone is regarded as favourable. In Yorkshire what are called "flats" are somewhat similar, as in the district of Swaledale. The regular veins here running north and south have been extremely poor, although of large size, and containing much vein stuff; the men have driven out into the cross-cuts, and between the cross-cuts and the veins they have met with in these flats following joints in the limestone, and running nearly in the same direction as the veins. In some cases these flats found are of large size, and have evidently been washed out, or worn out by the action of water; when opened they are more or less filled up with matters fallen from the roof, &c., among which large masses of pure galena are very commonly found in enormous quantities. The "pipe veins" of Derbyshire are of an essentially similar character. Another series of this class of deposits which must be mentioned are the great deposits of hematite in the Whitehaven and Ulverstone districts.

They, too, are great washed out portions of limestone. I can regard them as nothing more; they have much the appearance of lodes, but come to a sudden termination below, especially when they meet a bed of shale. From the nature of these deposits we may expect to find more or less impurity intermixed with the ore, but in some cases they are remarkably pure. As they are covered over with 20 or 40 ft. thickness of boulder clay, which renders it a difficult matter to find any indications of them at the surface, it is found necessary to employ borers to go about testing the ground for them. The last series I may mention is that of deposits of iron ore—brown hematite—on the south border of the South Wales coal field, and notably also in the Forest of Dean. The deposits occur in irregular excavations, in rocks of dolomitic limestone, which are termed churns; the churns may sometimes contain sand or clay, sometimes brown iron ore. The average height of the churns is from 10 to 20 ft. Examples of this fourth class of irregular repositories are met with in Belgium, Westphalia, and the North of Spain, yielding ores of iron, zinc, and sometimes lead. Burat, in his work, gives sections of some of them, and much information respecting them may be found in the "Transactions of the Geological Society of Germany." They are exceedingly interesting, as defying all attempts to reduce them to anything like rule.

COLLIERY ACCIDENTS, AND THEIR PREVENTION.

The London Association of Foremen Engineers and Draughtsmen held their annual meeting on Saturday at the Society of Arts, the President, Mr. JOSEPH NEWTON, C.E., being in the chair. There was a good attendance of members and friends. After some preliminary business, the President delivered his annual address. In the course of his observations special reference was made to the colliery fatalities of the past year; and suggestions were thrown out for their prevention and the alleviation of the distress consequent upon them. He said that the mining fatalities of 1875, it was to be feared, would prove upon the day of reckoning to have been far more numerous than those of any previous year in the annals of this country. Very much of the apathy felt and the indifference exhibited by the general body of the community in respect to colliery disasters had arisen not from callousness, but from lack of technical information. If the memory of the recent disasters were allowed to die without strenuous and determined efforts being made to prevent a recurrence of them the sin, and perhaps the remorse, would certainly remain with those who with the power to do good had failed to use it, and who shut their eyes to the teachings of experience. In a few months Parliament would re-assemble, and should the Government fail to take up earnestly the subject of death in coal mines, it was to be hoped that some philanthropic, practical, and energetic member would do for the collier what Mr. Plimsoll had done, and was doing, for "Poor Jack"—make it as criminal an offence to send the one into the workings of an ill-ventilated and ill-found coal pit as it was to ship the other on board a rotten and untrustworthy vessel. It was likely that in the course of the next twelve months the "out-put" of 4000 collieries of the British Isles would be fully equal to what it was in 1874 (the statistics of 1875 were not yet published), 125,000,000 tons; and as matters stood at present it was highly probable that 13 human lives would be sacrificed every month of the year in accomplishing the task. Surely such a statement, based upon reliable data, ought to have the effect of concentrating the attention of the Ministers of State upon the whole question, and of inducing them to put a barrier between the 1200 doomed colliers and their otherwise inevitable destiny. Mr. Newton said that, in fact, it had been long thought next in importance to the saving of life in the coal pits should rank the care to be taken of the widows and orphans of coal pit victims. The causes of accidents might be debatable, and so might

be the means of the preservation of the victims, but there could be no doubt as to the sufferings—mental and physical—of those who had lost husbands, fathers, sons, or brothers by such catastrophes. It was in the work of enriching the country (the actual value of the coal raised from the pits of Great Britain in 1874 being 45,849,124*l.*) and in ministering to the comforts of its inhabitants that their deceased relatives met their deaths. Could there be a shadow of doubt (he asked) as to whether the helpless tenants of homes thus made destitute were fit recipients of national compensation? The only difficulty consisted in the plan by which the useful work could be accomplished. A special system of compulsory life assurance for colliers had been some time ago suggested, and Parliament had already determined that a class exposed to such excessive and peculiar dangers as colliers should be protected by special laws, and thus the principle of partial, rather than universal, legislation had been instituted. Although a system of life assurance would undoubtedly be very beneficial to the men employed in collieries, to their families, to the public, and, perhaps, to coalowners themselves, the expediency of enforcing it by law might be doubted. It had been suggested that coalowners should in all cases of accidents be made to compensate the sufferers; but that would scarcely be a just arrangement. The colliers themselves were reckless for the most part, and nearly all of them were fatalists. Imbued with the sentiment, springing from the constant thought of danger, and in the habit of asserting that they could only die once, they frequently disregarded even the most obvious means of insuring their own safety. Nothing short of better education and higher intelligence would overcome the evil; but it was one which relieved to some extent coalowners from responsibility in respect of many accidents. Considering that the annual British out-put of coal was over 100,000,000 tons, if it were possible to levy upon it $\frac{1}{4}$ d. per ton from consumers, it was easy to see that a very large fund would soon be raised from which every case of distress arising from a colliery disaster might be met and adequately adjusted. The machinery for collecting the tax need not be very complicated. If coal merchants were put under the necessity of exacting the homeopathic dose on the delivery of every ton of coal to a purchaser, and of recording its receipt, collectors could call at stated intervals to receive the amounts. A central office in London, with the necessary subsidiary arrangements, would render the plan complete. A great national colliery family relief fund would thus be established, which would spare people the knowledge that in addition to the horrors of a pit "accident," the relatives of sufferers were plunged into the deepest destitution and misery. The address was received with great applause.

MINING AND STOCK EXCHANGE NEWS OF THE WEEK.

Messrs. F. W. MANSELL and Co. (Sworn Stock and Share Brokers), Pinners' Hall, Old Broad-street, write to us as follows:—

VAN (Lead).—Since 1869 this great mine has paid in dividends nearly 250,000*l.*; last year its dividends amounted to over 40,500*l.*, notwithstanding a considerable expenditure met by revenue properly chargeable to capital. The mine was purchased by the present company for 46,000*l.*, and the ore already sold has realised a sum exceeding 500,000*l.*; the monthly returns are 500 tons of lead and 150 tons of blende, valued at more than 8000*l.* In face of the large outlay incurred during 1875 in reconstructing and enlarging the dressing-floors and machinery (by which manual labour of some 80 hands have been saved), and the other working facilities of the mine otherwise improved, the quarterly dividends have been increased. Henceforward a large monthly output may be anticipated, as well as a considerable reduction in the cost. From the time this property was introduced upon our market we have always pointed to it as a steady, sound, and progressively improving investment. Now, we have no hesitation in pointing to Van as an investment that can safely be left to our children as a reliable source of income. To those unfamiliar with the history of this mine, and who probably may be equally unaware how often a permanent income may be obtained by securing an interest in a sound mine while its shares are yet low in value, should know that Van shares not many years since were purchased largely at prices varying from 8*l.* to 10*l.* per share, since when there has been paid in dividends 16*l.* 13*s.* 6*d.*, while the resources of the property have scarcely been tapped, or its producing capabilities fairly brought into play—its riches have been so rapidly developed that it has been mechanically impossible to construct the necessary appliances commensurably with the developments, although an immense deal has been done in this direction. Before the lode had been cut in the 60 fm. level, the ore reserves were valued at 2,000,000*l.*, lead at the time being 12*l.* per ton, whereas the price now realised is from 15*l.* to 16*l.* Viewing the extraordinary manner in which this wonderful lode has increased in size and richness from the 15 fm. level to the 105 fm. level, the almost prophetic statement which Captain Williams, the manager, made in the year 1873, just now possesses peculiar interest. Capt. Williams said "that, generally speaking, large wide lodes are called flats, which, as is doubtless known to many, are sometimes suddenly cut out, but in Van all theories upon that point must have long since vanished. We have now got into the settled country. I always had great confidence that the lode in the 60 would be cut rich, and my anticipations having been abundantly verified, I have still greater confidence as to the result in the 75. As yet about 2 ft. of the lode has been seen in the 60, but I can describe its appearance as nothing but a quarry of lead. It may perhaps be an interesting point for scientific men to know that for three hours after the lode was cut one might have thought there was at least half-a-dozen railway trains in the mine by the gas rushing into the vaults and converting them into whistles. For three hours there was not a spot of water to be seen in the 45, which all practical miners regarded as the most favourable indication for having a rich lode the whole length. Not only is the ore ground lengthening in depth, but when I look at the shape and form of it I am very much tempted to say we are yet only just on the crust of the deposit." The improvements and discovery we announced last week show how correctly Capt. Williams read the Van Mine from its earliest history. We still recommend the purchase of these shares, although during the week the price has further advanced about 8*l.*

EAST VAN (Lead).—Referring to this property in 1872, we informed our readers that it immediately adjoined the world-famed Van; that it contained the same masterly lode, that its character at East Van was precisely the same as in the old shallow workings at Van before the deep adit level had been driven upon it, and that its average width in the Van adit was 5 fms., and the flookan, or soft, 5 fms.; but that at East Van the lode was 10 fathoms wide, and the flookan the same width. We also mentioned that when productive at Van it was productive throughout, and that by comparing Van at shallow depths with the indications at East Van we expected large deposits of lead would be met with under the soft, or flookan, which at Van for some distance at the surface forms a cap on the back of the lode. If our memory serves us correctly, Capt. Williams once said that he had to work for some years in Van under far less favourable indications than those at the time presented in East Van; and in 1872 the Chairman of the company, Mr. T. C. Munday (since deceased), addressing the shareholders, said—

"Turn a deaf ear to every report except that from the manager, for no man can possibly know more of the exceptional character of the lode, and no one better able to speak with confidence as to its future, whether in Van or East Van." The information just to hand is the strongest and most substantial proof yet shown of the soundness of the above opinions, the lode having been cut in the 25 under adit worth 50*l.* per cubic fathom, giving backs of not less than 70 fms. To show the lode holds to surface may be mentioned the circumstance that the water was cut at about 10 fms. deep in the new shaft, distant about 100 fms. from the eastern boundary of Van, and 15 fms. in advance of the present cross-cut. While the East Van shareholders cannot well over-estimate the great importance of this discovery, it is equally important to the shareholders in Van, as it proves beyond doubt that this wonderful lode continues of value throughout the 400 fms. of unexplored ground, eastward between the present workings in Van and the East Van boundary, also from the latter point to the new shaft in East Van. The latest information of the presence of gas may be regarded as most satisfactory, as throughout the history of Van this

A short paper in the last number of the "Philosophical Magazine," explains Mr. Weston's process for refining copper by means of phosphorus. A rich compound of phosphorus and copper is first made by pouring the molten metal on to sticks of phosphorus; and a proper proportion of this compound, which contains about 7 per cent. of phosphorus, is added to the copper during the operation of refining. The deoxidising action of the phosphorus effectually "poles" the copper; but in practice it is found expedient to limit the quantity of the phosphorised copper, so that when the metal is brought nearly to "tough pitch," the operation of toughening may be completed by the ordinary pole. The process is carried out at the Government Metalworks at Chatham Dockyard, and is likely to be extensively employed. It increases the density of the copper, thus improving the metal for copper sheathing and other purposes, whilst

it accelerates the process of piling, and reduces the consumption of wooden poles.

In a recent number of the "Journal of the Geological Society of Ireland" Dr. Tichborne calls attention to the occurrence of thallium in an iron ore from Pissina. The ore appears to be a mixture of iron pyrites and zinc-blende, but it is uncertain which of these minerals contains the trace of thallium detected in the mixed ore. Dr. Emerson Reynolds has found thallium associated with the Irish cupreous iron pyrites.

Fluorine is an element which appears to be widely disseminated through Nature, commonly in association with compounds of calcium. Dr. Tichborne finds that it is frequently present in calc spar, and has detected it in even the purest and clearest crystals. It is noteworthy that so much fluorine exists in some of the calcium phosphates that the pipes connected with the apparatus for the preparation of superphosphates become plugged with silica, which is deposited from the gaseous fluoride of silicon produced in the operation.—*Athenaeum*.

DRAINAGE OF THE HALKYN MINING DISTRICT.

Owing probably to the natural exclusiveness of Englishmen the association of all the mineowners in a district to secure the performance of some great work for the common benefit of them all has seldom, if ever, been attempted in Great Britain, and hence many valuable mining localities have been suffered to lose their commercial reputation altogether through neglect to remove some obstacle which, although not insuperable, is too great to be dealt with by any individual proprietor. In America tunnel companies are quite common, and the work which they have done has not only proved of immense advantage to the mines affected, but has also been highly remunerative to the tunnel companies themselves. For many years past the mines of the Halkyn district have suffered severely from the absence of any united action to facilitate the removal of the water, the result being that a large number of mineral deposits acknowledged to be valuable are entirely unavailable below the water level. It is to these circumstances that may be traced the disappointment which has attended the working of such mines as the Rhosmor, Hendre, Glanyrafon, Nant, Bryn, Alyn, and many other mines in the same locality—the prospects of obtaining mineral being such as would fully justify an agent in making a favourable report, yet the difficulties met with upon attempting to raise them being such as to render the profitable working of them impracticable.

That these obstacles to the remunerative working of the Halkyn mines may no longer exist a special Act of Parliament has been secured, incorporating the HALKYN DISTRICT MINES DRAINAGE COMPANY, with a capital of 100,000*l.*, in shares of 10*l.* each, his Grace the Duke of Westminster, Lord Richard Grosvenor, Mr. J. T. Banks, of Soughton Hall, and Mr. R. Nicholson, of Abbotfield, being upon the board of direction, and Messrs. John Taylor and Sons, of Queen-street-place, the engineers. It is proposed, in the first instance, to issue one-half of the capital, and from the nature of the company's business no doubt is entertained that it will prove a satisfactory investment. It is explained that the company has been incorporated for the purpose of draining by means of tunnels or adit levels, to be driven at sufficient depth, a rich and extensive mineral district in the parishes of Halkyn, Cilcen, Northop, and Mold, in the county of Flint, comprising an area of about 7414 acres. The company has power, by the Act of Parliament to levy a royalty upon every ton of mineral raised within this area, the amount per ton depending upon the nature of the mineral and the locality of the mine.

For the purposes of the Act the district is divided into two areas, so as to distinguish the mines which, from deriving more direct advantage, are required to contribute more largely than the others. In No. 1 district are the Deep Level and Pant-y-go, the Rhosmor, the Nant-y-filigill, and the Great Hendre; whilst in No. 2 district are found East Rhosmor, Pen-y-r-Osedd, Tyddyn-y-Gwynn, East Hendre, North Hendre, Bryn Gwio, Fron United, Cyceod, South Hendre, Mwnbwll, Erw-felin, Rhyd-y-mwyn, Bryn celin, Pen-y-fon, Llyn-y-pandy, Pant-y-mwyn, Modlyn, Pant-y-Buarth, East Pant-y-Buarth, Glan Alun, Mold Mines, and the Fron Fownog Mines, besides considerable tracts of mineral land which have never been explored at all. It is truly stated that very large sums have from time to time been expended in endeavouring to unwater many of the above mines by means of steam and water power, but all attempts to do so effectually and continuously have failed; one by one they have ceased to be worked, and now there is scarcely a single mine in the district which is worked below the water level, although it is notorious that in many of the mines rich and valuable deposits of ore were left buried in the water.

It having become obvious that isolated efforts to unwater particular mines were perfectly futile and a mere waste of money, and that the real requirement was a comprehensive and well-devised general system of drainage by means of a series of adit or water levels driven to certain points in the district for the common benefit of all the mines, and to the cost of which all should contribute in proportion to the benefits derived, the necessary powers have been obtained from Parliament with that single object; the company will have nothing whatever to do with mining operations; as such, they will be left to mining companies proper, and this company will confine itself solely to the execution of the work sanctioned by the Act for draining the mines in the district. The projected tunnels appear to have been laid down with the greatest judgment, with a view to secure the utmost benefit to the mines, and considering the auspices under which the company is formed, there need be no doubt that the works will be carried on with vigour. By the Act powers are given to the company to acquire the existing "Halkyn Deep Level," which has already been driven from the Nant-y-filigill stream, into which it empties itself, for a distance of 1½ mile; this level was commenced in 1818 by the then Earl Grosvenor, since which a very considerable sum has been expended upon it. Powers are also given to drive five tunnels, of an aggregate length of about three miles—three in a continuous line, in a southerly direction, commencing at the southerly end of the Halkyn Deep Level, and terminating at a point near Bryn Alyn, at Rhyd-y-mwyn, on the Mold and Denbigh turnpike road; and two branches—one running in an easterly direction for a distance of 742 yards, towards the well-known Rhosmor Mine, and in the lode which has been so productive at that mine; the other in a westerly direction for a distance of 741 yards towards the equally well-known Great Hendre Mine, and in the lode which has produced so largely at that mine.

It is proposed in the first instance to repair the existing deep level, and to drive by means of machinery, and with every possible dispatch, the No. 1 tunnel a distance of 1280 yards, to the South Pant-y-go shaft in the take of the Rhosmor Company, and competent mining authorities are of opinion that this tunnel alone will unwater a very considerable area, embracing Rhosmor, Great Hendre, and other mines, so that the result of this will be ascertained before deciding upon the remaining tunnels. The financial prospects of the enterprise could scarcely be more encouraging, since the company is empowered by the Act to levy from every occupier of a mine drained by the company's works a royalty of 2*l.* 10*s.* for every ton of lead or lead ore raised, if the mine be within area No. 1, and 1*l.* 10*s.* if it be within area No. 2; for every ton of blende or calamine, 2*s.* 6*d.* and 1*s.* 6*d.* respectively; and similarly 6*d.* and 4*d.* per ton on coal, cannel, or shale; 3*d.* and 2*d.* per ton on ironstone or iron ore; 2*d.* and 1*d.* per ton on fire-clay; and for every ton of other minerals raised, 5 per cent. of the saleable value thereof on the pit bank, if the mine be within area No. 1, and 3 per cent. if it be within area No. 2. The royalties are payable by the mine occupiers, but by the Act, prescribed allowances in respect thereof are to be made to such occupiers by their landlords. It is confidently believed that so soon as the first tunnel is commenced operations will be resumed in many of the before-mentioned mines, which are now practically at a stand, and that the prospect of this long talked-of project being actually realised will infuse fresh life into the district, and give that impetus to mining which is so much needed, not only in the interests of mine owners and lessees, but also of the public.

The mines which will be first benefited by the drainage works are the Deep Level and Rhosmor. From the Deep Level alone a considerable royalty is expected, and with regard to the Rhosmor

it is mentioned that at that mine three pumping-engines have been erected, and very large sums from time to time expended in attempts to unwater it, company after company having been formed in consequence of the wealth of ore known to exist under water there; such attempts were finally abandoned by the present Rhosmor Company in 1871, but they having thereby satisfied themselves of the continued productiveness below the water level of the old lode from which former companies had obtained large quantities of ore, and having since, by their operations above the water level, discovered several parallel veins, all proving productive, and one of which they consider equal to the old vein, have been active in promoting the Act of Parliament, and their shareholders contribute largely to the required capital. No. 1 tunnel will be driven at a level 30 yards to 40 yards below their lowest level in the old lode, and upwards of 50 yards below the workings in the recently discovered parallel veins; and if they should raise only 100 tons per month, which they consider a very low estimate, the royalty payable to the company from their mine alone will be 3000*l.* a-year, or equal to 6*l.* per cent. on the first issue of 50,000*l.*

The above are two only of the many mines within the company's drainage areas, and it cannot be doubted that the company's operations will enable other important going mines to be prosecuted below the water level, and be the means of at once setting to work other productive but now flooded and dormant mines, and amongst the earliest perhaps the Great Hendre Mine, which has been one of the best mines in the district, and is now idle only because it is drowned out, two very powerful engines having been found unequal to keep it continuously drained; in addition, there are considerable tracts of virgin land, which will, when drained, almost certainly be explored and worked. It is further pointed out that this company will enjoy a special and peculiar advantage over most projects, as when the district is once drained its annual expenditure will be, comparatively speaking, trifling; there will be no engines to be kept going, and no fresh works to be executed, but simply the staff charges of the company, and the cost of keeping the tunnels in repair, which, owing to the character of the strata, will be inconsiderable.

UTICA, ITHACA, AND ELMIRA RAILROAD COMPANY, STATE OF NEW YORK, U.S.

The readers of the City Articles of the daily or commercial papers cannot fail to have noticed the great rise that has recently taken place in the value of securities of the first-class railways of the United States, and especially those more immediately connected with the State of New York. Amongst such securities we have every assurance that the bonds of the Utica, Ithaca, and Elmira Railroad will soon take a foremost place, the line being now fully completed and at work. The balance of 300,000*l.* (\$1,500,000) First Mortgage Seven per Cent. Bonds, amounting to 150,000*l.* (the first moiety having been already issued) in bonds of 200*l.* or 100*l.*, now offered for subscription by Messrs. Henry R. King and Co., of 65, Cornhill, and 45, Pall Mall, at 92½ per cent., or 185*l.* the 200*l.* bond, upon which the interest will be paid half-yearly, at the offices of Messrs. King, at the rate of 7½ per cent. The bonds are to be paid for by instalments extending to April next, or in full on allotment under discount at the rate of 4 per cent. per annum, the first dividend falling due on July 1 next. The bonds are redeemable at par in 1924, and are to be provided for by the operation of a cumulative sinking fund of 6000*l.* per annum, and accruing in trust, beginning on Jan. 1, 1875, and to be applied prior to 1902 annually in the purchase of bonds at a price not exceeding 5 per cent. above their par value—a most fair principle both to the railroad company and the bondholder. The bonds at the price of issue give a return of about 7½ per cent. irrespective of the premium divided on their redemption. The line of the Utica, Ithaca, and Elmira Company is 56 miles in length, passing through the centre of the State of New York, and has been built by means of a very circuitous route of railway, the gauge of which differs from the standard of the country, or by a combined railway and canal route, which is not only inconvenient but totally unavailable five months in the year. The capital stock of the company is 82,000,000*l.*, of which 81,124,782 has been paid up; and the bonds which form a first mortgage on the property and revenue of the company are issued to pay off in part any obligations incurred during construction, the total cost being 25,661,000*l.* The line was completed and opened for traffic on the 1st of November last, but it had been for some time in partial operation for local traffic, the revenue from this source alone being sufficient to pay the working expenses and the interest on the bonds. It is estimated, founded on the experience of the local traffic and engagements for coal freight already entered into, that after providing for working expenses at 60 per cent., and, allowing for gold, bearing a premium of 14 per cent., that the net revenue will be sufficient not only for the service of the bonds, but to give a return to the shareholders of about 9 per cent. per annum on the paid-up capital. The line is a district in which, from its position, mineral products, agriculture, and the timber trade have already assumed considerable importance, and are constantly on the increase. Messrs. Poor, the proprietors of that well-known work, "Poor's Railroad Manual of the United States," have examined the line and its prospects as railway experts, and have reported that the bondholders possess in the mortgage a first-rate security, perfectly unassailable, whilst there is every ground for expecting that the traffic will not only amply provide for the bonds, but "return handsome dividends to the shareholders;" and Mr. Wm. Wilson, C.E., of George-street, Westminster, reports that "according to the standard adopted in the United States, the railway has every right to be considered a first-class line;" and, taking all things into consideration, "there can be little doubt that it will prove one of the most valuable and profitable railroads in the State of New York." What more can or need be said?

FOREIGN MINES.

MENZENBERG.—R. K. Roskilly, Jan. 5: Setting Report: Dickins engine-shaft to sink below the 45 to 50 marks (103. 10*s.*) per fathom (8 ft. 10½ in.); the ground here has a most congenial character, being composed of a very fine slate or kilaas, which, judging from its present appearance, we think will improve; this shaft is 1 fm. below the level, and its sinking is being pushed on with all possible dispatch. The 45 to drive north of cross-cut to two men, at 38 marks (1*l.* 16*s.*) per fathom; the lode is 4 ft. wide, composed principally of quartz with spots of copper ore—a promising lode; this end is about 2 fms. north of cross-cut. This level to drive south of ditto to three men, at 38 marks (1*l.* 16*s.*) per fathom; the lode here is 3 ft. wide, and producing occasionally stones of copper ore, and in addition an improvement in the end is 6 fms. 3 ft. 9 in. south of cross-cut. Our engine and pitwork are in good condition, and working well.

LINARES.—Dec. 29: Pozo Ancho Mine: The 100 fm. level east of Warne's shaft is in a very powerful lode, producing 1 ton lead ore per fathom. The same level west is unproductive. The 85, west of Crosby's, and the 65, west of Peil's shafts, are without improvement. The 75, west of Peil's, is suspended while a winze is being put through to ventilate it. The lode in the 55, west of this shaft, is small and poor, but the granite is very hard for sinking through. The lode in the 90, west of San Francisco's shaft, is of no value. The lode in the 90 and 65, east of this shaft, are small, producing ½ ton per fathom each. The 75, east of same shaft, is opening a good length of paying ground, worth 1 ton per fathom. In Peil's engine-shaft, sinking below the 90, the men are getting down remarkably well. No. 203 winze will shortly be holed to the 100; the lode produces 8½ tons per fathom. The lode in No. 205 winze has diminished both in size and value, worth ½ ton per fathom. The stopes yielded very well in the past month, and are now being worked. The ordinary day labourers are working on very steadily, and the machinery is in good condition. We estimate the raisings for January at 200 tons.—Quintanitas Mine: The 90 fms. level, west of Taylor's engine-shaft, is in very hard granite. The 80, west of this shaft, is poor; the lode is now in contact with the cross-course. The 45, east and west of Cox's cross-cut, is in a small lode, of no value. The 80, east of Taylor's, is in a wide and open lode, letting out water. In the 65 and 55, east of Addis's shaft, there is no improvement, the lodes being poor. The 55, west of San Carlos, is entirely without ore. The 65, west of this shaft, is in a large lode, producing occasional stones of ore. The lode in the 80, west of the same shaft, has fallen off very much, and now produces 1 ton per fm. The 80, east of San Carlos, is in a strong and regular lode, but without ore. The lode in the 65, east of this shaft, is large, with good stones of ore in the upper part of the end, worth 1 ton per fathom. The 55, east of Judd's shaft, is suspended. The lode in the 45, east of this shaft, is small and poor. Nothing of value has been met with in the 32 cross-cut, north of Judd's shaft. In Cruz winze, below the 65, the ground is hard; the lode is large, and spotted with lead. Marco's winze is holed to the 80, the lode yielding 2 tons per fathom. Ciero's winze, below the 45, is in a very small lode, worth ½ ton per fathom. We estimate the raisings for January at 150 tons.

LANESTONA.—Dec. 29: In Judd's shaft, sinking below the 100 metre level, the limestone has now lost its siliceous character, and it is hoped that better progress will be made. The driving on the cross-course, west of the 100 south, is now several metres beyond the point at which the lode was expected, and there are no signs of its presence yet. In the ventilation winze, below the 100, the lode has widened out to 4 ft., chiefly calcite, without ore. The 80 metre level south shows no change; the lode is 3 ft. wide. The cross-course in the cross-cut from the 80 south being thrown considerably out of line by the north and south vein met with, and there being but a few metres more to reach the presumed line of the western lode, driving is being continued at a right angle through hard limestone.

No. 4 stopes in the back of the 60 the ore still holds about the cave, but it is likely to be all worked out during the ensuing week; the lode is now worth ½ ton of lead and ½ ton of calamine per fathom. Stopping is about to be commenced north of the cross-course. In the 90 metre level south, the lode yields ½ ton of lead per fathom. In the adit level on caunter lode, driving north, a little calamine has been met with during the last few days, but not enough to value. It is expected the returns will be 10 tons of lead and 10 tons of calamine and mixed ores.

FORTUNA.—Dec. 29: Canada Inco's: The lode in the 110, west of Judd's shaft, is small at present, and does not contain enough lead to value. The 30, east of San Carlos shaft, is passing through disordered ground. The 60, west of San Pedro's shaft, is in hard, poor ground. The lode in the 60, east of San Frederico's, is large

and strong, producing 1 ton per fathom. The 50 and 40, east of this shaft, are without ore to value. The lode in the 90, east of Addis's shaft, and the 80, west of Kennedy's, contain a little lead ore in each end. The 90, west of Kennedy's, still produces ½ ton per fathom. The lode in the 90, east of Caro's shaft, produces ½ ton per fathom. The 80, east of this shaft, is in a very rich lode, worth 3 tons per fathom. Abercrombie's shaft is down the required depth for the 40; the lode is worth 1 ton per fathom. Good progress is being made in San Pedro's shaft, below the 80. The lode in Sancho's winze, below the 25, maintains its size and value, 1 ton per fathom. Enrique's winze, below the 80, is in a large well-defined lode, opening good tribute ground, worth 2½ tons per fathom.

Los Salidos: The lode in the 120, west of Buenos Amigos shaft, produces 1 ton per fathom. In the 110, west of San Carlos shaft, the lode is small, and the ground hard. In the 130, west of Morris's shaft, there is a regular lode, with occasional stones of lead ore. The same level east is in hard granite, the lode being small. The lode in the 120, east of Morris's, still continues disordered. The lode in the 110, east of San Pablo's, has fallen off a little in value, but still produces 2 tons per fathom. The 100, east of San Miguel's, still continues unproductive. The lode in the 35, west of Swaffield's shaft, is compact, and free from the influence of the cross-course; it yields 2 tons per fathom, and shows good indications for further improvement. The 45, west of this shaft, also produces 2 tons per fathom. The lode in the 55, west of Palgrave's engine-shaft, continues small, and of no value. The 65, west of Palgrave's, yields ½ ton per fathom, and in the eastern end 1 ton per fathom; these ends have been suspended for the past week, owing to an increase of water, the pitwork being overpowered for the time. The 55, east of Palgrave's, is without ore. In Buenos Amigos shaft, below the 120, the men are working well, but the granite is very hard for sinking through.

ALAMILLOS.—Dec. 29: The 30, west of San Francisco's shaft, is in a strong and regular lode, yielding ½ ton lead ore per fathom. The lode in the 50, east of La Magdalena cross-cut, has improved, and looks promising, yielding 1 ton per fm. The 55, east of Taylor's engine-shaft, is in hard ground; it will be holed to San Enrique's shaft in a few days. The lode in the 85, west of San Adriano's shaft, is large and strong, producing 1 ton per fathom. The lode in the 60, east of San Victor's shaft, has fallen in the past fortnight, and is poor. The cross-cut south from this shaft at the 80 has intersected the lode, and driving east on its course has been commenced. The same level west is in a strong well defined lode, but of no value at present. The lode in the 40, west of San Carlos shaft, is small and unproductive. The 30, east of Air shaft, is opening a good length of profitable ground, now yielding 1 ton per fathom. The lode in the 40, east of this shaft, is small, with good stones of ore in the bottom of end. There is no improvement in the 50, east of Crosby's. The 50, east of Judd's shaft, is in a large lode with good stones of ore, but of no value. The 80, east of this shaft, is without improvement. The ground in the 70 cross-cut, north of Judd's, is very hard, and there remain several metres to drive to the lode. The 30, west of Swaffield's shaft, holed to Luis's winze over the end, the driving is resumed in a lode small and poor. In Taylor's engine-shaft, below the 85, the ground is hard, and the men progressing slowly. San Enrique's shaft is deep enough for the 85, and will be holed shortly. The sinking of Cox's shaft below the 50, which is off the lode, is resumed. Martinez and Juan's winzes, below the 25, are unproductive. In Davey's winze, below the 40, the lode is off by the main slide. Roza's (new) winze, below the 25, east of Addis's shaft, is in a lode worth 2 tons per fathom. A new winze (Ciro's) below the 30, east of air-shaft, is in a lode yielding 1 ton per fathom. The stopes yielded the usual quantity of ore in the past month, and are now without any alteration worthy of notice. The machinery is in good condition, and the ordinary surface works are going on very regularly. We estimate the raisings for January at 200 tons.

For remainder of Foreign Mines, see to day's Supplement.]

The following report was received too late for insertion in its proper place:

LLANIDLOES (Lead).—John Kito, Jan. 6: I am pleased to inform you that the lode in the 80, east of engine-shaft of the 30, east of Addis's shaft, has greatly improved, and is now worth from 25 to 30 cwt. of lead ore, to the fathom, with an exceedingly good and promising appearance. This is, I consider, a highly important and encouraging feature, being in the very bottom of the mine, and only about 10 fathoms from the engine-shaft. The eight shaftmen are busily engaged cutting the lode at the 80, preparatory to resuming the sinking of the shaft for a new 72 fm. level, which will be begun as soon as possible. The tribute pitches, or bargains, are looking pretty well, and are yielding a fair quantity of ore, and are being worked at prices varying from 4*l.* to 6*l.* per ton. The dressing is also proceeding satisfactorily, and we have sold 20 tons of lead ore at 14*l.* 6*s.* per ton.

A WEALTHY MINER.—California is much exercised by the statement put forward on the death of Mr. W. B. Astor that New York had produced the richest man in the world, and the organs of the Pacific States are anxious to prove that they can produce a millionaire of larger proportions than any on the coast of the Atlantic. Their representative man is Mr. John Mackay, who 10 years ago was working as a mining labourer in an exploring shaft in Virginia City, Nevada Territory. He was then earning \$4 a day. He is now the principal member of a firm which owns the Consolidated Virginia Mine, the richest mine in the West, and some dozen of other mines in Nevada and other gold-producing districts. The net income of Mr. Mackay from his mines and bank is estimated at \$10,000,000, or 2,000,000*l.* sterling, per annum.

STEAM-ENGINES.—The improvements invented by Mr. WEATHERHEAD of Swindley, and Mr. TAYLOR, of Jersey City, U.S., consist in the balancing of slide and rocker valves and stop and regulator valves of steam-engines by means of wedges or cones, which bring the valves and back plates from their seats, and allow for priming. Also in applying the wedge valves above described to compound engines, and for blowing steam through the cylinders of the same by causing the wedges or cones to draw the valves from their facings. Also in improvements in the steam chests of compound engines, whereby the workings of an admission valve placed in the central chamber of the steam chest and connected to the governor or other moving part of the engine, passes high pressure steam when desired from the chest or boiler into the low pressure valve for mixing the low with the high pressure steam for increasing the power of the engine. Also in causing the induction valves of compound and other engines to have a partial rotating and reciprocating motion for the purpose of regulating the cut off without the use of an extra expansion valve. This is accomplished by connecting the valve rod to the governor spindle or lever and any other moving part of the engine. Also in causing the back plate of a circular piston or segmental valve to act as a regulator, in place of using the ordinary throttle or regulating valve.

THROAT IRRITATION.—The throat and windpipe are especially liable to inflammation, causing soreness and dryness, tickling and irritation, inducing cough and affecting the voice. For these symptoms use glycerine in the form of lozenges. Glycerine, in these agreeable confections, being in proximity to the glands at the moment they are excited by the act of sucking, becomes actively healing; 6*d.* and 1*s.* boxes (by post 8 or 15 stamps), and tins, 6*d.* and 1*s.* labelled "JAMES EPPS AND CO., Homoeopathic Chemists, 45, Threadneedle-street, and 170, Piccadilly, London."

COPPER ORES.

Sampled Dec. 22, and sold at Tabb's Hotel, Redruth, Jan. 6.

Mines.	Tons.	Price.	Mines.	Tons.	Price.
West Seton	75	£6 1 6	Carn Brea	47	£4 13 0
ditto	75	5 4 0	West Bassett	47	3 2 0
ditto	64	6 5 0	ditto	41	0 18 6
ditto	63	5 7 6	ditto	40	2 8 6
ditto	57	5 4 0	ditto	25	9 4 6
ditto	52	5 15 0	South Crofty	49	3 6 6
ditto	49	5 0 0	ditto	40	3 18 0
ditto	29	9 12 6	ditto	29	3 11 6
ditto	18	4 7 0	South Carn Brea	11	5 17 0
Crenver and Abraham	62	3 15 6	ditto	11	21 6 6
ditto	57	2 6 6	Carn Camborne	42	2 6 6
ditto	56	4 0 6	ditto	24	4 14 0
ditto	51	4 6 6	ditto	19	3 7 0
ditto	46	2 4 0	Condurow	35	1 15 6
ditto	45	2 19 6	ditto	31	2 6 0
ditto	40	5 13 6	St. Aubyn United	37	5 0 6
ditto	32	4 4 6	ditto	28	5 0 6
ditto	6	12 18 0	West Poldice	32	5 0 6
West Tolgus	60	7 5 6	ditto	26	5 9 6
ditto	59	4 18 0	Cathedral	35	4 5 6
ditto	54	9 3 0	West Roskear	21	2 18 6
ditto	53	5 18 6	ditto	10	7 19 6
East Pool	72	3 4 6	Providence	30	3 4 6
ditto	31	1 6 6	New Rosewarne	28	8 13 6
ditto	30	3 3 6	ditto	24	4 18 6
ditto	25	3 17 6	Dolcoath	21	12 6 6
Carn Brea	48	4 14 0	Poldice	10	0 6 6
ditto	46	2 9 0	South Tolcarne	5	2 14 6
ditto	45	4 5 0	Richards's Ore	2	9 2 6

TOTAL PRODUCE.

West Seton	475	£2763 17 0	St. Aubyn United	65	£339 18 6
Crenver & Abra.	395	1490 4 6	West Poldice	58	407 19 0
West Tolgus	226	1525 15 6	Cathedral	35	149 12 6
East Pool	183	514 6 0	West Roskear	31	141 3 0
Carn Brea	153	734 3 0	Providence Mines	30	98 15 0
West Bassett	153	567 3 0	New Rosewarne	30	252 15 0
South Crofty	118	422 12 0	Dolcoath	10	67 2 6
South Carn Brea	96	748 6 6	Poldice	21	67 2 6
Carn Camborne	85	274 2 6	South Tolcarne	5	13 12 6
Condurow Mine.	65	133 8 6	Richards's Ore	2	18 5 0

Average standard £116 10 0 | Average produce 63½
Average price per ton £4 14 0
Quantity of ore 2262 | Quantity of fine copper 144 tons 13 cwt.
Amount of lead £10,634 6 6
LAST SALE.—Average standard £111 9 0 | Average produce 7½
Standard of corresponding sale last month, £112 12 0—Produce, 6½.

COMPANIES BY WHOM THE ORES WERE PURCHASED.

Names.	Tons.	Amount.
Vivian and Sons	273	£1256 4 0
Grenfell and Sons	242	1473 9 6
Nevill, Druce, and Co.	262½	951 0 6
Williams, Foster, and Co.	531	2009 10 6
Mason and Elkington	339	1693 1 6
Copper Miners' Company	571½	2049 5 6
Sweetland, Tuttle, and Co.	240	1230 15 6
Total	2262	£10,634 6 6

NO SALE on Thursday next, January 13.

Copper ores for sale at the Royal Hotel, Truro, on Thursday week—Mines and parcels.—Devon Great Consols 125*l.*—South Caradon 462*l.*—Mark Valley 345*l.*—Guanakak 305*l.*—Hingray Down 296*l.*—Glasgow Canada 240*l.*—Brewton 230*l.*—East Caradon 130*l.*—Wheal Russell 106*l.*—Wheal Crebor 101*l.*—Prince of Wales 57*l.*—Duchy Great Consols 20*l.*—Total, 3543 tons.

PLYNIMMON.—John Gariand, Jan. 6: At the new shaft, sinking below the

Eberhardt and Aurora shares have changed hands up to 94, 94, but close weak-er at 84 to 9; in the absence of a cablegram it is concluded that still a steady working. Lettons are expected daily mining

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OPINIONS OF THE PRESS
ON FIRST EDITION.

"After some very sensible remarks, and some hints as to the points to consider in forming an opinion as to the merits of a mine, Mr. Murchison goes thoroughly, and in the most able manner, into the object of his pamphlet. . . . We are obliged to defer till next week going into the numerous valuable facts and figures which are so prominent in every page of Mr. Murchison's pamphlet; but we must at once congratulate him on a production which is calculated to do much good to the mining interest, and to be a great benefit to investors."—*Mining Journal*.

"We heartily recommend capitalists to obtain and study the contents of this pamphlet, for we calculate that it will do more for the press which has so much calculated to do good to an important British interest."—*Mining Journal*.

"Mr. J. H. Murchison, F.R.G.S., has just issued a neat little pamphlet on the British lead mines, illustrated by admirably executed maps of the chief lead mining districts of the kingdom. Mr. Murchison has a very high opinion of the value of that important item in our national industry, lead mining; and in the work before us he fully justifies that opinion. . . . and we have great pleasure in recommending this treatise, which contains much statistical information, to the notice of our readers."—*Morning Post*.

"Few persons are more competent to compile such a work than Mr. Murchison, and it will be found a handy book of reference by all investors. . . . We recommend those who are said at present to have a superabundance of money, for which they cannot find good investments, to read and carefully consider Mr. Murchison's pamphlet."—*Mining World*.

"Mr. M. J. shows that mining is quicker, safer, and less expensive than any other, and that the price of lead is generally steadier than that of other metals. . . . A great deal of valuable and useful information will be found in Mr. Murchison's pamphlet, which is embellished with three well-executed maps of the principal lead mining districts."—*Financier*.

"Under the title of 'British Lead Mines,' a pamphlet has been published by Mr. J. H. Murchison, F.R.G.S., of 8, Austinfrars, with the object of showing that the operations in British lead mines have in many instances led to very profitable results."—*Standard*.

"A pamphlet well worthy of consideration. . . . In these times of general depression it is satisfactory to find an important British interest in a prosperous state, and we invite capitalists to look into this means of investment."—*Money Market Review*.

"Mr. Murchison publishes in a concise form particulars of the past history and present position of some of the principal British lead mines. . . . A chapter on public lead mining companies, their aggregate capital, dividends, and market value, will not be the least recommendation to the popularity of this production."—*Monetary Gazette*.

"This is a valuable book of reference, dealing in a summarised form with a large mass of statistical information affecting the mining interests of England. . . . We seldom see so much practically useful information compressed into the same space."—*Irish Times*.

"Parties interested in this description of investment will find a good deal of useful information in this pamphlet."—*Bristol Daily Post*.

"An interesting pamphlet, with carefully drawn maps, of the lead mining districts of England and Wales: . . . but apart from its special value in that direction, the work is useful. . . . The pamphlet must be of the greatest value as affording plain and reliable data to guide them (those interested in this industry) in their speculations."—*Leeds Mercury*.

"Valuable and interesting information is given relating to British lead mines."—*Fortmouth Times*.

"The pamphlet, which contains several excellent maps, should be in the hands of every mining investor."—*Cheltenham Express*.

Notices to Correspondents.

SIR.—Can any reader inform me the value of graphite, plumbago, or black-lead per cwt. or by the ton? Also, can anyone tell me if it is marketable, and where; at the same time give me the address of any auctioneer or salesman of ore in London, Liverpool, Bristol, or elsewhere, to whom ores can be consigned for sale.—*Inquirer: Chudleigh.*

BRICK MAKING AND SLATE QUARRYING.—Can some correspondent give me the title of the best work published on the subject of Brick-Making; also, the best work on Slate Quarrying in Wales.—*P. McG.*

ARTIFICIAL STALACTITES.—I should esteem it a favour if any correspondent will inform me, through the Journal, the best method of making an artificial stalactite cavern, so that it may be permanent, and not too costly. I wish to know of what the hanging masses should be formed, and how they can be given the glistening appearance which is so much admired.

WELL-SINKING.—Can any correspondent inform me, through the Journal, the probable cost per yard or per fathom of sinking a well of 3 ft. diameter to the depth of 100 fms. through the millstone grit of Yorkshire; and also the shortest time in which such a work could be accomplished.—*J. S. Pennell.*

WIRE TRAMWAYS.—“R. A.” (Airolo).—There is no difficulty in using wire tramways under certain conditions—when the line is not too long, and when they are properly and judiciously set up. “R. A.” does not state the distance of the proposed buildings from the point where the stone is to be taken; but here would be no difficulty in constructing it so as to avoid crossing the zigzag road from any point below La Prova to Airolo. The opinion has frequently been expressed in the *Mining Journal* that no single wire should exceed 1½ mile in length; but it is quite easy to provide for the automatic transfer of both full and empty cars at the end of each length, and the fall from the pass towards Airolo would render motive power quite unnecessary. The cost would be merely that of erecting the tramway. As to cost, &c., “R. A.” should apply to the company's secretary, and give him details as to the distance the stone is to be carried, and the nature of the ground to be passed over.

MINING KNOWLEDGE.—“D. A.” (Barnsley).—Hopton's “Conversations on Mines,” which will be forwarded from our office on receipt of 3s. 3d., will most nearly correspond with the description of book you desire.

BLOWPIPE ANALYSIS.—“T. B.” (Highgate).—The most complete work on the subject is Corwall's “Treatise of Blowing,” published by Low and Co., Fleet-street, price 17s. Blanford's “Translation of Scherer,” price about 7s., published by Williams and Norgate, Covent Garden, is an excellent little book.

THE IRON INDUSTRIES OF SOUTH WALES.—In next week's Journal we shall publish an important paper on the South Wales Mineral Basin, by Mr. R. Meade, Assistant Keeper of Mining Records, Museum of Practical Geology. Received, “E. C.”—“J. I.”—“T. G.”—“Mineralogist”—“Reader”—“J. W.”—“F. B.”—“Shareholder” (Wheat Grenville)—“Miner” (Retrath): Next week “Constant Reader”—“U. S.”—“Holder of Shares” (York) should apply to a broker “W. M.” (Nearth)—“Shareholder” (Dublin): The meeting will be held in a week or two, and the proceedings will be reported in the Journal.—“Y. Z.”—“Engineer” (Wigan): The subject was referred to in last week's Journal. We shall give some further particulars in a week or two.—“Shareholder” (Wheat Russell)—“Shareholder” (Rio Tinto)—F. J. King (Separation of Minerals): Next week.

THE MINING JOURNAL.

Railway and Commercial Gazette.

LONDON, JANUARY 8, 1876.

CO-OPERATIVES AND CAPITALISTS IN THE COAL AND IRON TRADES.

The experience of the North of England Industrial Iron and Coal Company would seem to indicate that the colliers in North Wales were wise in their day when they refused a friendly offer of Mr. WHALLEY, M.P., made upon the occasion of two several strikes, when he tendered his services as mediator. On a late occasion, and now again in the past few weeks, that gentleman has offered to provide the colliers in the Northern Principality with a colliery which they might work upon the co-operative principle, and until they had made a profit of 10 per cent. pay no rent. Upon both occasions alike the men refused to accept the offer. Mr. WHALLEY desired that the men might have an opportunity by their own trading of testing what were their masters' profits; but the men declined to be thus educated. Perhaps they knew how things were going on at the North of England concern. How little success has attended that concern was pointed out in the Journal of last week, though it does not seem that the people who have had it in their hands have been deficient in managerial or practical ability. They appear to have made the best of the property in which they were conjointly interested that the circumstances of the times will permit. For the very purpose of spreading enlightenment amongst the men upon the risks and frequent losses inseparable from the mining and ironmaking industries, we have often desired that more co-operative concerns of this kind existed, for we were sure that the information afforded would be such as should cause the men to entertain a little more respect for those who ran those risks and sustained those losses, whilst it made the wage-earner less dissatisfied with his own position. Whether or not the outcome of the North of England Industrial Company will have this effect may be open to question. Nevertheless, the information will come home to very many, for as we last week showed, several co-operative societies are large shareholders in the undertaking, which has blast-furnaces and rotary puddling furnaces at Carlton, near Stockton, coal mines at East Howles, in the county of Durham, and ironstone mines at Ailsbury, in Cleveland. Not all their operations have been profitless, but what they have gained in one direction they have lost in another, and they are, therefore, unable to declare an interim dividend even upon the preference shares. The directors are, however, hopeful. What directors were not at any time when it has been at all practicable to keep aloof? “They look forward hopefully (they say) to a revival of trade in the spring, which will essentially improve the position of the company, and justify a resumption of work under favourable conditions at Carlton forge, in conjunction with the new plate-mills.”

Nothing but good, as well to wage-earners as to wage-payers, should result from the operations of this concern. If the results of the trading should be to convince the numerous co-operative societies who have put money into it that they might easily lose in industrial co-operation of this class money which they have gained by the keeping of co-operative stores whereat they spend the money which has come to them as wages, much loss and suffering will have been avoided. But a greater benefit than that should come about. The current profitless operations of the North of England Industrial Iron and Coal Company should convince the wage-earner that “the capitalist is a pure boon to every community, never a mischief (if his trade be in itself innocent and beneficial) but always a good, and that on the greatest scale.” Not so, however, it is pointed out, “argues the workman. He, on the contrary, meets this with a flat contradiction. The capitalist (says he) is our natural and necessary enemy. He may be personally a good sort of man, he may have risen from the ranks of workers, he may by birth and connection sympathise with us, but his position is antagonistic; our foe he must be, our master he will be if he can, and we have nothing to do but either dispense with him altogether, where that is possible, or fight against him by combination as best we may.” Against all this prejudice, error, and confusion employers (Mr. F. W. NEWMAN has written) cannot hope to prevail by reasoning, and whoever takes a contrary side in the argument is generally set down in the workman's mind as one who has his own reasons for upholding the tyranny of competition; and that, moreover, the sanction of some educated gentlemen confirms the workman in these convictions. It is hard, Mr. NEWMAN says, to get the opposite argument listened to in the right quarter. All this was before the public before the report of the company of which we are writing came out. But if it is difficult by argument, and by the promulgation of facts which are patent enough to people whose education has not been biased by class prejudices to convince of the truth, then we may hope for better results from circumstances which appeal so directly to a man's personal interest as that of loss of savings.

There can be no disputing Mr. NEWMAN's position that “capitalist traders are the true leaders and organisers of national industry. Without them trade is extremely languid, industry has very small rewards and no investments. Without them population may, indeed, become dense if the land be carried into small freeholds, but its in-

dustry is then confined to those primary forms which the first necessities of life suggest. Without capitalists to invent, resolve, risk, guide, superintend, control, and supply materials and food for workmen, we shall have no masses of organised industry, no iron or copper mines, no coal mines, no huge ships, no distant foreign trade, no vast workshops, no elaborate roads, but mere wretched tracks.” How mistaken, therefore, are those leaders of the masses who would teach that these same capitalists are the natural and necessary enemies of the masses. With equal force and plainness the *Times*, descending upon the report of the Co-operative Association which we have been discussing, says that “the barrenness of the present time may suggest to the working men that the position of a wage-earning labourer has its advantages as well as its disadvantages. If the workman for a weekly wage has no means of exacting with precision a share in the profits rising with the improvement of trade, he is protected, except in extreme cases, against the risks of loss by the stagnation of trade. He has a certainty of the same employment on the same terms so long as business can be carried on at all. His employers accept all the hazards, and expect to be proportionately remunerated. The working man in an industrial undertaking is very nearly in the same position as a debenture-holder in a company, his wages are the first charge, and their rate is fixed, except by a variation of the contract mutually agreed upon, the risks fall upon the ordinary shareholders—that is, upon the capitalist employers. It is not reasonable that the debenture-holder while retaining the security of his 4 or 5 per cent. should claim to participate in the gains of the ordinary shareholders in the profitable years, and should repudiate responsibility for losses in the unprofitable years.”

COLLIERY ACCIDENTS, AND PERMANENT FUNDS.

The views we have frequently enunciated with respect to the money at present in hand from funds raised for the relief of the widows and children of the men killed by colliery explosions are finding an echo where least expected. It appears that the public is tired of subscribing after a colliery accident on an extensive scale has occurred, not because sympathy or charity are in any way paralysed, but simply because it has been made acquainted with the fact that there is sufficient money in hand to more than provide for all the women and children that have recently lost their husbands and fathers by the explosion at Swaithe Main. On Tuesday evening a conference on the subject was held in Barnsley, under the presidency of the Mayor, and there was present the provision at committee appointed in connection with the Swaithe disaster, as well as representatives of the Oaks committee formed in 1866, and who will have a surplus estimated at from 15,000l. to 20,000l. The matter discussed was the advisability of establishing a permanent fund. Allusion was made to the probable balance from the Oaks Fund in 1866, as well as to something that remained from a previous one raised in 1847 for the sufferers by an explosion at the same place. There was also said to be the sum of 2,280l. invested, being the amount of the surplus of the Hartley Fund appertained to Yorkshire, whilst a letter was read from the Lord Mayor of London asking for definite information as to what claims were likely to be made on the proposed fund from the sufferers by the Swaithe explosion. We may remark that whilst writing, meetings, and conference are taking place there is considerable suffering on the part of those who from no cause of their own have been the means of causing it all. Mr. HARVEY, one of the committee of the Oaks Fund, made the somewhat singular declaration that it was the duty of the colliery owners to subscribe most liberally before the public were applied to, and expressed an opinion that the public would stand aloof until they did so. He then referred to the appeal made for aid from the Oaks Fund from the secretary of the Morley Main Colliery Explosion Fund for assistance, attention to which was drawn by us at the time—and the refusal. The latter appears to have been based on a circular issued at the time the fund was being formed, and which stated that the subscriptions would be held sacred for the relief of the sufferers by the Oaks disaster, and that any surplus which might be left would not be given up until every claim was satisfied. Now, we are not aware of any duty resting upon the colliery owners as a body to subscribe very liberally towards the sufferers by the Swaithe explosion, and we, in fact, could give some very good reasons why they should not. On the occasion of the Oaks explosion the colliery owners subscribed most liberally, so that a large sum of money given by them is now held by Messrs. HARVEY and the two or three other gentlemen who have the fund under their special protection. Indeed, the only wonder we have is that the conduct of those parties should have been so long tolerated by the large subscribers. True, no doubt, a circular was issued, but surely that is a most flimsy argument for refusing to give up a portion of a very large sum of money, which under no circumstances can ever be required for the object for which it was subscribed.

It would seem that it is intended to keep the money as long as the present managers can do so. But as it is not unlikely that the great body of the subscribers will be applied to, we shall look with no little interest to the course that will then be pursued by those who have shown so little sympathy with the widows and fatherless. Mr. W. STANHOPE, M.P., took the same view of the matter as we did last week, for he said if no part of the fund could be made available for the sufferers by the Swaithe Main explosion, an actuary could be called in, and he would be able to estimate the amount required to meet all claims, and the Oaks Committee might then see its way clear to grant a certain sum for the purpose of founding a permanent fund. This appears to be an easy way of getting out of a difficulty if there really is one, but we certainly do not see any reason whatever, notwithstanding the statement of the treasurer, that the interest on the invested money did not pay the claims. We should think that nobody ever dreamt that such would be the case, for parties would not subscribe 40,000l., or more, so that the interest only should be paid away, and the capital itself invested in the names of a few gentlemen entirely unknown to the great bulk of those who sympathised deeply with the unfortunate sufferers. The trustees, however, have not shown the slightest sympathy for the poor widows and children of those who lost their husbands and fathers in consequence of other colliery explosions, and we certainly have not the slightest confidence in them, but hope they will be obliged to act entirely different to what they have done.

MONEY AND IRON.

The iron trade naturally follows very much the varying phases of the money market, and reflects their influences. One of these current phases is the financial collapse of rotten republics and decaying despotisms, and the growth and strength of progressive colonies. There seems little chance of our doing a very extensive business in rails this year with Turkey, or even with Egypt; but the case is quite different when we come to deal with our colonies. In these young but vigorous communities there is, happily, a large measure of hope and energy; and the human race, decaying apparently in some ancient countries, is there renewing itself with all the fire and vitality of youth. In South Australia, for instance, the public revenue has increased in five years from 700,000l. per annum to 1,000,000l. per annum, and a more or less marked progress has been observed in well nigh every other member of the flourishing Antipodean group of settlements, poor convict-tainted Western Australia, perhaps, excepted. The result has been the remarkable growth in the exports of our railway iron to the Australias, to which we have more than once called attention. In the eleven months ending Nov. 30, 1875, we sent the Australian settlements 27,785 tons of rails and accessories; in the corresponding eleven months of 1874, the corresponding exports rose to 80,839 tons; and in the corresponding eleven months of last year they still stood at 74,765 tons, although the shipments have presented, perhaps, rather less activity of late.

There is one circumstance which appears to us to tell strongly in favour of the existing state of affairs, as contrasted with that which prevailed three or four years since. In 1872 we were beginning to make consignments of rails to American railroad companies of very doubtful credit, most of which came altogether to grief in the great panic of September and October, 1873. We do not suppose that

any very serious losses were sustained by British ironmasters by their transactions of 1872, but they were clearly of a risky character, and, therefore, their enforced cessation was by no means an unmixed evil. The character of the colonies—or at any rate, of most of them—with which we seem now to have a chance of doing a considerable rail business is of an altogether different character. Nothing can be more stable, or more well assured, or more respectable than the Government of the Cape Colony, or the Government of the steadily advancing Australian settlements. The credit of these Governments is so strong that their paper is as good as their money, and it would not be any hardship to an English ironmaster or an English iron company to receive payment in whole or in part in debentures of such bodies. We think these are considerations which ought not to be overlooked. As a well-established colonial Government cannot be otherwise than an excellent paymaster, an English ironmaster could afford to work for it at a moderate profit; and it seems probable that this point will be borne in mind, and that every effort will be made to do business upon the (at any rate, in some cases) sound principle of small profits and quick returns.

It is clear that if we mind what we are about, our colonies may for some years to come prove excellent customers for our iron. In colonies population is scarce, and capital is scarce also, and these are conditions which must check for a lengthened period the development of colonial metallurgy upon an important scale. Here and there we see attempts made to turn the iron wealth of the Australian colonies to good account. Such efforts will, doubtless, prove successful some day, when the Australias have more inhabitants and a larger store of accumulated wealth, but at present it can scarcely be said that Australian metallurgy exhibits much vitality. On the other hand, the Australian colonies and New Zealand stand in urgent need of railway communication—in more need, indeed, than many countries of the Old World, since they are not so well supplied with ordinary roads and navigable rivers. We trust, however, that our ironmasters will not endeavour to enforce an exacting policy in dealing with Australian clients, but that they will act upon the principle that, after all, a nimble ninetence is infinitely better than a slow shilling. Certainly, the British iron trade has for many a long month had enough of slow shillings.

THE COPPER TRADE.

During the quarter ending Dec. 31 the quantity of copper ore, the produce of Cornwall and Devonshire, sold at the Cornwall Ticketing, was 13,431 tons, which contained 917 tons 14 cwt. fine copper, and realised 67,832l. 10s. 6d., being equal to an average of 5l. 1s. per ton of ore, and 73l. 18s. per ton of copper in the ore. During the same period the British, colonial, and foreign ores sold at Swansea amounted to 6,909 tons, which contained 1145 tons of fine copper, and realised 93,823l. 8s. 6d., being equal to an average of 12l. 8s. per ton of ore, and 81l. 19s. per ton of copper in the ore. The average produce of the ore sold at the Cornwall Ticketings was 6½ per cent., whilst that sold at Swansea gave an average produce of 15 per cent. From this it will be seen that the aggregate sales by ticket were 20,340 tons of ore, containing 2062 tons 14 cwt. of fine copper, and realising 161,655l. 19s. The subjoined is a summary of the periodical sales at the Cornwall and Swansea Ticketings respectively. The ore sold at the Cornwall Ticketings were—

Date.	Standard.	Prod.	Price.	Per unit.	Tons.	Fine cop.	Amount.
Oct. 7.	115 11 0	6½	45 0	6 14s. 9d.	1480	99t. 12c.	£ 7,440 10s
21.	115 10 0	6½	5 2 6	15 0	2225	152 4	11,396 5s
Nov. 4.	113 12 0	7	5 4 6	14 10½	3601	154 6	11,483 8s
18.	116 10 0	6½	4 17 0	14 10	2943	235 18	17,707 7s
Dec. 2.	112 12 0	6½	4 16 6	14 0	1236	83 5	5,975 8s
23.	111 9 0	7½	5 4 6	14 6	2646	189 7	13,829 5s
Total for the quarter					13,431	917 14	£ 67,832 10s 6d
Quarter ending Sept., 1875					13,952	953 10	72,618 1s
Quarter ending June, 1875					11,717	821 17	60,317 2s
Quarter ending March, 1875					10,980	748 12	53,953 13s
Total for the year 1875					50,080	3412	£ 2,254,721 6s
Showing a quarterly average of					12,521	860 10	63,680 4s
Corresponding quarter Dec., 1874					12,959	917 17	67,308 10s
Total for the year 1874					50,237	3623	£ 2,354,459 11s

The ores sold at the Swansea Ticketings were—

Date.	Standard.	Prod.	Price.	Per unit.	Tons.	Fine cop.	Amount.
Oct. 24.	£104 6 3	14 7-16	£11 17 4	18s. 1d.	1806	260t. 15c.	£21,436 7s
Nov. 9.	104 7 6	23 3-4	19 6 0	16 8	1159	272 7	22,368 9s
23.	104 1 3	13-16	15 16 10	16 6	1108	212 12	17,554 11s
Dec. 7.	102 14 0	10 3-4	8 5 2	15 9	1411	143 3	11,655 11s
29.	104 12 0	17 3-4	14 12 1	16 6	1425	251 0	20,811 9s
Total for the quarter					6909	1145 0	£ 93,823 8s 6d
Quarter ending Sept., 1875					6549	1073 7	89,189 7s
Quarter ending June, 1875					6290	1033 3	82,793 18s
Quarter ending March, 1875					4335	1046 3	84,946 3s
Total for the year 1875					23,683	4303 13	£ 236,075 15s
Showing a quarterly average of					5,923	1076 18	87,688 19s
Corresponding quarter Dec., 1874					8,998	1463 6	121,233 11s
Total for the year 1874					31,422	5495 18	£ 427,517 14s

BELGIAN COMPETITION.—The following is an illustration of the lower rates at which work is done in Belgium than in this country. A manufacturer of a certain class of heavy hardwares in South Staffordshire lately received an offer for a quantity of goods at a price which he could not accept if he produced them himself. He knew, however, at what rate he could buy iron made in the North of England; and he knew, likewise, upon what terms this could be worked up into the required products in a Belgian manufactory. Accordingly, he bought iron in the North of England, and had it shipped to Belgium, and made up into the hardwares specified. These he received at his own manufactory, and then dispatched them to his customer, realising upon the transaction a profit even at the very low terms upon which alone the customer would buy.

COAL AND IRON IN THE UNITED STATES.—The production of coal is being reduced in the Schuylkill district, in Pennsylvania. The quantity of coal and coke transported over the Pennsylvania Railroad in the 49 weeks ending Dec. 4 last year was 4,052,066 tons, of which 3,326,996 tons were coal and 637,876 tons were coke. The movement of coal over the Lehigh Valley Railroad to Dec. 4 last year was 2,417,800 tons, against 3,016,636 tons in the corresponding period of 1874, showing a decrease of 598,836 tons last year. The Coshott Iron and Steel Works, which suffered an almost complete collapse from the panic of 1873, are now again in full activity. The El Dorado Canyon Coal Company has under consideration the construction of a narrow-gauge line from its mine to Carson, Nevada. English rails in bond are quoted at New York at \$35 to \$36 per ton gold; American rails, at the works, at \$45 to \$48 per ton currency.

DEATH OF MARK FRYAR, F.G.S.—It is our painful duty to announce the death of Mr. MARK LINDSEY FRYAR, which occurred at Rangoon, British Burmah, on Nov. 19, at the early age of 43 years. Mr. Fryar, whose abilities as a civil and mining engineer are so well known to many of our readers, bore an honoured name and held a high position in the mining world. After the studies and experience of early years, we first observe the late Mr. Herbert Mackworth bringing him to Bristol to assume the duties of master of the School of Mines in that city, which he subsequently resigned for the appointment of Professor of Mining at the Andersonian University, Glasgow; and he retained several years with very gratifying success in all the students, and leaving took with him many valuable tokens of their appreciation. His mining experience and scientific acquirements fitted him for the wide domain of mining pursuits, and we now find him examining and reporting on the petroleum wells of Roumania, afterwards engaged by the Sultan of Turkey to inspect the mineral resources of that country, including the beds of lignite at Salonica, and for a considerable time explored in Abyssinia and various other places on the Red Sea coast. Returning to England he practised in Bristol, and suggested various schemes of great value for the city, some of which have been carried out. In March, 1868, the late Sir Rodrick L. Murchison offered him the appointment of Mining Geologist on the Geological Survey of India, which he accepted, and he nearly completed eight years' service in that country, making splendid min-

discoveries, among which may be named that of the Chauda coal field and enormous masses of hematite iron ore in the central provinces, besides deposits of silver-lead, and very large quantities of stream tin in British Burmah; highly interesting and graphic descriptions of these and many others, with valuable and important reports on the already existing collieries being contained in the records. It will interest many to add that after proving the Chauda coal field by boring he sunk a shaft, encountering in it a sharp quicksand, and fitted it with guides, cages, &c., with openings on the vein in readiness to work the coal, which was examined by the late Lord Mayo (then Viceroy), who accompanied Mr. Fryer down the shaft to the coal face, and extracted a piece of it with a pick presented him before descending, and which had been made of the iron obtained from the ore he (Mr. Fryer) had discovered in the district. He was well known as an able leader and contributor to the mining institutes and papers, and his general mainly bearing raised him in the universal esteem of a large circle of friends. The name of Mr. Mark Fryer will be long remembered, and we can scarcely refrain from expressing regret that so young and bright a career should have been so soon cut short by the insidious climatic influences of the East.

REPORT FROM CORNWALL.

Jan. 6.—In the absence of any special news of interest for the current week, our report can hardly be better occupied than by giving some additional details of the course of mining events for the past year so far as the different districts are concerned.

The St. Just district has, as already stated, suffered very materially by the stoppage of St. Just Amalgamated, which at one time employed about 300 persons. Moreover, there was not a single dividend declared in the district for the year. The general prospects of the larger mines have, however, much improved during the last few months, and, including Ding Dong, over 1500 persons are now employed. Wheal Owles has opened up in West Wheal Owles quite a new mine under the sea, where a very rich tin lode has been discovered, worth in parts 1000 per fathom. The tin in stock at Wheal Owles is worth at present prices—estimates of its quantity vary from 15,000 to 20,000. On such a quantity as this a rise of 10s. or 15s. would pay. Wheal Owles employs about 250 persons, and has six steam-engines working. The last account showed a surplus profit on four months of about 10000. Botallack has improved its position. Wheal Cock has opened out well, and the new portion of the mine east has been turning up some splendid tin ground; there is a very extended field for new discovery. The monthly returns of tin and copper are leaving a fair profit; there are now employed about 400 persons. Levant Mine, which runs out under the Atlantic a third of a mile, and is 230 fms. deep, is doing much better, and somewhere about meeting the costs; nearly 22,0000 has been called up here. The north lode at the 130 is opening up well, likewise a new copper lode very recently discovered at the 85; about 220 persons are now employed. North Levant making profit, looking very well. There are several points of discovery looking very encouraging. About 170 persons are employed. Upwards of 150 tons of best tin were returned last year. Spearman Moor managers have opened up a new part lying on the south, which offers special chances for success on the Botallack lodes. This mine sold during the past year about 77 tons of best tin. Wheal Cuning and Great Trevezean are both working on an easy scale of cost, and discoveries are anticipated.

The chief event in the St. Ives district is the suspension—noted last week—of the St. Ives Consols, which employed nearly 400 hands, and had returned 130,0000 in dividends. The *Western Morning News* in its mining summary, to which we are indebted for some interesting particulars, says that it is likely that a new company may be formed. At Rosewell Hill, too, the adjoining set west, the old mine has been abandoned, and operations are now chiefly directed towards the north of the set. Early in the year Wheal Mary, Wheal Margaret, and Wheal Kitty (Lelant) are flooded to the 80, and considerable controversy arose between the parties interested. This was at last settled by an amalgamation, and the three mines are now being worked as Wheal Sisters. The water is now down to the 120, but the richest ground is still under water. These mines have raised something like 1,000,0000 worth of tin, and declared very handsome dividends. Providence Mines have successfully passed through their hour of trial, and employ about 220 persons, nearly as many as Wheal Sisters. During the year about 150 tons of tin have been sold, and at an average price of 48s. 10s. per ton. No call has been made during the year, and that the returns about meet the expenditure. The Trencrom Mine, adjoining Wheal Mary, is said to offer good prospects; also the Duro, which is an extensive set, always very productive for tin. No dividend has been declared from Lelant or Towedack for the past twelve months, but present prospects are considered more hopeful. Twenty engines are now at work in the district, and nearly 900 persons are employed.

The Hayle and Marazion districts, though there have been some attempts at revival, present practically the same depressed state. Mining here is far more a matter of history than a present fact. Mining is at a low ebb in the Helston district, in comparison with the state of things three years since, when a busy population was profitably employed at high wages. Many of the smaller adventures have succumbed long since, and Great Wheal Vor has materially reduced its labour cost by limiting the working. Great Work has been "knocked," after decades of regular dividends. The value of cottage property in the parishes of Breage and Germoe has seriously depreciated. In Wendron, Trumpet Consols still works, and is as productive as ever, but the tin discoveries in the Australian colonies have more than taken away shareholders' profits, and instead of dividends calls have followed; a little improvement of the tin standards would again make this mine at least self-supporting. East Lovell, which some wondrous with tin over 900 per ton, still holds its own. Balmynheer, in Wendron, is in an exceptional state, as large deposits of tin have been laid open, and considerable returns are being made. The directors declared a dividend of 10 per cent. The prospects of the mine were looking bright when the manager made the announcement that the mine had partially collapsed, and was rapidly filling with water. The cause was that the adit level had been choked for several months, and that when the heavy rainfall in November found its way down the mine there was no outfall beyond that of the pumping engine. The agents were dismissed, and others put into their places, and the operations are to be resumed at once.

There has been little outward change in the great mining district which centres around Redruth and Camborne and the outlying locality of St. Agnes. There have been several stoppages, though none at all approaching the importance of St. Just Amalgamated and St. Ives Consols. But unless matters greatly improve 1876 will have a different tale to tell. The present tin standards are the lowest for some years, and the majority of tin mines cannot pay costs at this price. Dolcoath, Tincroft, and three or four others could pay their way with tin at 40s. per ton; East Pool at even less than this. But such largely productive mines as Carn Brea, Cook's Kitchen, West Basset, West Frances, and Pedn-an-drea are barely able to meet their costs at present prices, and unless better are obtained in 1876 more will cease working. Several mines gave way last year, including Wheal Buller, Florence, Parbola, South Dolcoath, and Polbarrow, although not so many as were shut up in 1874. The prospects of West Polcoth, however, have caused the market value to increase enormously. Wheal Coates, in St. Agnes, is more than paying costs. Wheal Unity Wood, Wheal Pevor, Killifreth, and St. Agnes Consols are all progressing very favourably.

Copper mines have held their own better during the year than tin mines, the price of copper being remunerative, and several new mines are being taken up with a view to their being worked. We Soton has made profits of over 200,0000; and, although in the early part of the year, from an influx of water from the neighbouring mines, the mine suffered heavily, yet now that their additional pumping machinery is at work, and the water mastered, they are able to come to ticketing with very good quality ores, and in pretty large quantities. The recent discoveries in the western ground are very important. At Wheal Basset there is also a new discovery of copper reported. This mine has already made profits of over 350,0000, and the present discovery is watched with great interest. West Tolpuke pays regular dividends, and may be looked on as a permanent mine. The chief feature of the Chiverton district is, of course, the resumption of dividends by West Chiverton. Some other lead mines, newer ventures, are well spoken of.

The central district, and the country around St. Austell and Par, hardly call for comment. Where mining still exists here it is a

mere shadow of its former self. Still it cannot be said that 1875 made matters worse; and in some respects the prospects of 1876 are more hopeful. Tregalder Mine, near Falmouth, is being re-worked for silver-lead.

The Liskeard district has in no wise retrograded during the year. South Caradon has within the past 12 months had a large marketable rise; shares which might have been purchased in the latter part of 1874 for about 45s. or 50s. each are now trebled in value. This may be attributed to the improved productiveness of the various lodes, and to the present company having taken over West Caradon set, which is believed to be very valuable. Only a narrow boundary previously separated the two sets. Shares seldom change hands, and those who have year after year placed confidence in the mine have received large returns from their capital invested. The output of ore in Marke Valley has been largely augmented. At the next meeting it is believed the accounts will show a sufficient profit to declare a substantial dividend. With regard to East Caradon, many mining men believe that the old palmy days will again return to this mine. For some time the returns have been sufficient to defray the expenditure. Glasgow Caradon is a rich and valuable mine, and is returning a large quantity of mineral at a good profit. During the year important improvements have taken place. With a better price for tin Phoenix and West Phoenix would be again in a state of prosperity. In order to contend with the depressed state of the tin market every economy has to be exercised. Herodsfoot, almost the only lead mine in the neighbourhood, still manages to pay its way, and shows trifling profit each quarter. This mine has in days gone by been very profitable. Wheal Mary Ann has been abandoned. The adjoining mine—Trelawny—is supposed, would have continued working for many years longer had not the lord declined granting a set of the adjoining land, which was known to be very rich. This was a great blow to the industry of that district. Other mines in the same range have all been abandoned within the last few years—Trewatha, North Trelawny, Lulecott, and Wheal Wrey. In the early part of the year it was anticipated by many that the three mines last named would be resuscitated. Hitherto that hope has not been realised.

Mining in the district of which Gunnislake is the centre, embracing Callington on the one side and Tavistock on the other, has not for many years looked so healthy as during 1875. A very important feature in most of the mines is the immense quantity of muddle which has been turned to good account by the production of arsenic, and this has very materially increased the returns of so many a balance-sheet. Of all the mines in the district there have only been about one or two calls during the year, and there have been some dividends. Other mines might have declared dividends, but the shareholders have wisely decided on not adopting a hand-to-mouth policy, and have preserved their balance in hand to meet future contingencies, or to equalise dividends should they enter that happy state. Hingston Down and Gunnislake (Clitters) have resumed paying dividends, and every probability consists of a continuation. Bedford United Mine and Wheal Russell have again become profitable concerns, and are likely to enter the Dividend List. Drake Walls employs a great number of the population, and returns a large quantity of tin. The resuscitated mines are The Queen, Okel Tor, and Tavy Consols. The Emmons United Mines, comprising Holm-bush, Kelly Bray, and Reimoor, which contain vast quantities of arsenic, have been worked with greater activity during the last eighteen months than for many years past, and together with the Wheal Newton, at Harrowbarrow, are now carried on with vigorous operations by the West of England Fire-clay, Bitumen, and Chemical Company (Limited). The New Consols Mine is well reported of, though ores of arsenical pyrites, tin, copper, and silver, all blended together in the same stone, have been a source of annoyance for many years, but now that efficient means have been applied to separate them the difficulties attending the working of the mine at a profit have been got over.

Devon Great Consols, too, is looking better, and the general cheering prospects have led to enquiries after new mines, and in some cases sets have been granted with the object of reworking abandoned concerns. Recent discoveries at a considerable depth from surface have led to the firm conviction that it is no use playing at mining; those who would win mineral wealth "must plough deep."

Mining in Devonshire generally does not call for much comment. The Brixham district has been very dull. On the north of Dartmoor there is some activity, and Great Wheal Eleanor is spoken of as likely to revive tin mining in that locality. Chillator and Hogstare are as productive as ever of manganese. The Exmoor district is developing but slowly, though the Bamfylde Mine is spiritedly pioneering the way. It is hoped, however, that the undoubtedly great mineral wealth of this district will be speedily utilised. The Comb Martin Lead Mines have made a fresh start.

REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

Jan. 6.—The advance of 2s. per ton in the price of South Staffordshire coal upon which it appears that the leading coalowners in the district have determined, will raise the standard of furnace coal to 15s. per ton. It remains, of course, to be seen how far this as a standard can be maintained; but the effects of such a movement on the iron trade will be simply disastrous. The justification of the coalowners is that the demand is so great for best coal particularly, that it is only met with difficulty, and also that the miners are strongly urging their demands for higher wages. It is somewhat singular, that with the iron trade of the district so depressed, the coal trade should be so active; but the explanation is found in the circumstance that very large supplies of fuel are being sent by railway and canal to outlying districts.—[A telegram from Birmingham, yesterday, informs us that the coalmasters have decided to defer for the present the intended advance in coal.]

The South Staffordshire Iron Trade is this week in a state of suspense, pending the result of the quarterly meeting in Birmingham next Thursday. The only movement in prices at present announced is a reduction of 2s. per ton in Baldwin's (Wilden) best charcoal sheets; but this is quite an exceptional change, and has no bearing or significance as to the general course of prices for finished iron. For the moment the tendency of prices, both for pig and finished iron, is decidedly upward.

On Wednesday, at Wolverhampton, at a meeting of the South Staffordshire Mines Drainage Commissioners, the seventh report of the arbitrators on the drainage of the Tipton district was approved, an agreement for subsidising the Horsey and Tipton Green engines was ratified, and the seal of the Commissioners was affixed to the Bageley Mill in the Kingswinford district and the Bentley Mill in the Bilston district.

The following were included in to-day's quotations on the Birmingham Stock Exchange:—Sandwell Colliery, 39; Hamstead Colliery, 14 prem.; Cannock and Huntington Colliery, 24 prem.; Chillington Iron, 5; Pelsall Coal and Iron, 5 dis.; John Bagnall and Sons, 54; Patent Shaft and Axle Company, 5 prem. The market for iron companies' shares is depressed, but colliery shares are looking up.

The first annual dinner of the North Staffordshire Exchange was held at Stoke, on Wednesday, Mr. R. Heath, M.P., presiding. In the course of the proceedings it was stated that the Exchange already numbered 153 members, representing 80 of the leading firms of the district.

TERRIBLE COLLIERY EXPLOSION.—On Wednesday the village of Talke was again thrown into a state of consternation by another terrible colliery accident. This time the scene of the disaster is a little removed from the old spot the pits, the property of the representatives of the late John Wedgwood, called the Gammage Pits, lying in the valley nearer Red Street and Chiverton. Five human beings were suddenly launched into eternity, out of the 16 at the time in the pit. There are 101 men employed at the colliery, which is quite a new one, coal having been found about 12 months ago. At the time of the accident the five men killed were working in the fiery 7 ft. seam, the remainder working in the 8 ft. seam. Suddenly an explosion took place, which completely devastated the 7 ft. seam, and killed the men at work there. Fortunately, those working in the 8 ft. seam were all got out safe. One horse was killed. The cage hanging at the mouth of the pit was blown over the headstocks, and dashed to pieces, as were also the plates covering the pit's mouth. During the day 80 men had been at work, but fortunately they were divided into turns, or the loss would have been more terrible still. The bottom of the shaft was smashed in, and a breach made right to the furnaces. An exploring party of 14 descended about seven o'clock, and soon recovered the dead bodies of

the five men. They describe the destruction of property as fearful. The cause of the explosion is supposed to be a shot fired against the instructions of the firemen, Wm. Sharple, who was in the 8 ft. at the time of the accident. The pits are the property of the same proprietor as those where the ill-fated accident took place at Bignall Hill, Audley, on Christmas, 1874, and the seams are worked as at the latter place and at Talke. Strict systems of supplying the men with Davy lamps were carried out at the pits, and shots were not allowed to be fired only under instruction from the firemen, if at all.

NORTH STAFFORDSHIRE MINING INSTITUTE.

A meeting of members was held at Stoke on Monday, when Mr. T. S. Wilkinson, one of the Vice-Presidents, presided. Mr. J. Potts, Tunstall; Mr. T. D. Wardle, Keynsham, Bristol; and Mr. J. Creese, Birmingham, were elected members of the institute.—Mr. R. A. Marshall, of Leicester, read a paper on "Shepherd's Patent Sectional Boiler." By the aid of diagrams he gave a long description of this boiler, which, he said, was fully on a par as to evaporative economy with most boilers at present in use, and was the best type of boiler as regarded circulation of steam and water. Its main advantage was, however, that it would work with safety up to a pressure of 150 lbs. to the square inch. It had been tested up to 600 lbs. to the square inch.—Questions were put by the Chairman, Mr. Higginbottom, Mr. J. Lucas, and Mr. J. Ashworth; and, in reply, Mr. Marshall said the sectional boiler cost about as much per horsepower as the Galloway boiler. It was decided to have the paper printed, and a vote of thanks was accorded to Mr. Marshall for reading it.—Mr. J. Ashworth, of Burslem, read a paper on "Gunpowder," tracing its origin and history, and describing the ingredients composing it, promising that at a future meeting he would continue the paper, and treat of its manufacture and the resultant gases after an explosion.—On the motion of Mr. J. R. Haines, secretary, seconded by Mr. Stuck, a vote of thanks was tendered to Mr. Ashworth for his paper.—After the meeting, Mr. G. G. Andre, F.G.S., London, delivered an interesting lecture on "The Cleavage Planes of Coal, Relative to the Economical Getting of Coal."

SANDWELL PARK COLLIERY.

The following report has been addressed to the shareholders:—

Sir,—I beg to inform you that since the shareholders' meeting held on Nov. 13 last, the north gate road has been driven into the Park a distance of 81 yards, making a distance driven into the second "take" of 170 yards, and a total distance from the pit bottom, "as the crow flies," of 84 yards; and at that point I have put another bore hole up through the seam, and find it measures 8 yards 1 ft. 2 in. thick, of good fair quality, with no indication whatever of any fault, and has a most encouraging appearance still in that direction.

The gate road is ventilated by what is known as "pipe air" from the surface, and having now been driven a greater distance in a direct line than has ever been previously attempted with a single shaft in South Staffordshire, by such or indeed by any other means, and your directors having expressed themselves highly satisfied with the result, have suggested that the further driving of it should be suspended for a few months until the other shaft is sunk down.

Having regard to the fact that it has been driven so far in maiden coal without the slightest mishap, and that no good purpose could be served by incurring greater risk, I have accordingly suspended the driving in that direction until the other shaft is sunk down, and so utilise the labour in preparing the second pit bottom for business.

My directors have thought it desirable I should thus fully report to you in order that you may know the real reason for their deciding to stop the further driving of the gate road for the present.

Since the suspension of the gate road Mr. J. P. Baker, the Government Inspector of Mines for this district, has intimated to the directors that if it had not been stopped, he should have suggested such a course himself; and he, at the same time, expressed his pleasure at seeing it so far carried out without accident.

The second shaft, 15 ft. in diameter, is now sunk to a depth of 315 yards towards 430 yards, and the last fortnight 15 yards were completed. Three boats length (towards eight) of coal wharfrage have been put in and completed during the present Christmas holidays.

HENRY JOHNSON, Engineer.

REPORT FROM DERBYSHIRE AND YORKSHIRE.

Jan. 6.—The men at many places in Derbyshire have not yet got fairly settled down to work for the new year, so that it is by no means easy to say what is exactly the condition of trade. It may, however, be fairly assumed that ironworks generally will have opened the year 1876 somewhat favourably as compared with other parts of the country. The foundries appear to be in a healthy state as to the Bessemer steel works. A better demand for house coal usually springs up after the holidays, and this has been the case recently. Rather more is being done with London over the Midland, the rates to which will be advanced 6s. per ton after the 10th inst. The Great Northern and the London and North-Western also advance the rates to the same amount. The lead miners appear to be working steadily, for unlike the colliers, their wages are very small, so that they cannot afford so many days' play.

As yet little can be said with respect to the Sheffield trades, for ten days or a fortnight's holiday are not unusual to many of the workmen in the town. There is, however, some prospect that the present year will be much more favourable than the last one; so far, appearances favour that view with respect to several branches. In South Yorkshire the coal trade is much as it has been, but there are strikes at two or three places. At the Edmund's Main, which is connected with the Swatthe Main, the men have been on strike since the explosion at the latter, and refuse to work with powder. The question in dispute is as to the price to be paid for wedging. The men appear to consider they ought to realise as much money by that mode as by gunpowder. On Wednesday, a meeting of some of the masters with regard to the matter was held at Sheffield; but it is a question that does not directly interest the entire body of colliery owners, seeing that at many places the use of gunpowder has long been unknown.

THE SCOTCH MINING SHARE MARKET—WEEKLY REPORT AND LIST OF PRICES.

During the past week the market, though still quiet, has been very firm and prices tend upwards. In shares of iron and coal concerns, beyond a trifling reduction on Omoo and Cleland, prices are all better. The principal improvements are—3/ on Bolckow, Vaughan A shares, and 2/ on Lochore and Capletrae. Bolckow, Vaughan B shares have likewise advanced to 45s. 4d.; Cardiff and Swansea, 2s. (cum. div.), buyers; Leigh and Wilkes Barre 6s. 10s. cent. guaranteed bonds, 93s. buyers; and West Cumberland Iron and Steel, 14s. 10s. buyers. Foreign copper concerns are little altered, beyond a rise of 4s. on Pannell. In home undertakings prices are—Glasgow Caradon unaltered, at 14s. but new shares higher, 3s. 6d.; Clitters, 3s. 6d.; New Pembroke, 5s. sellers; Plympton Lead, 4s. buyers. In shares of gold and silver mines—Richmond, 1/ lower; Australasian Mines, 1/ 3/; Exchequer, 1/ 3/; Frontino and Bolivia, 2s. 6d.; I. X. L. 3; Javali, 1/ 3/; Pentstemon United, 1/ 3/; South Aurora, 7s. to 9s.; and Tecoma, 1/ 3/ buyers. Oil shares unaltered. The upward movement continues in the miscellaneous department, and those which are, and continue to be, managed efficiently appear likely to increase in favour. Glasgow Engineering, &c., is 1/ 3/; and Scottish Wagon 3/ 2d.—both higher per share. British Agricultural, 1/ 3/ to 2; and Scottish Wagon, B. 2. The Bank rate of discount has to-day been raised 1 per cent.—5 per cent. from 4 per cent., at which, it will be remembered, it was fixed only last Thursday. A detailed list of the several days' business follows:—

On THURSDAY last the market was quiet. Arncliffe, 7 to 7 1/2. Benhar, 11 1/2 to 11 1/2; new shares done at 6 1/2 and 6 3/4, closing at these prices. Frontino and Bolivia, 35s. buyers. Glasgow Caradon done at 3s. 6d. to 3s. 8d.; a good business was done in the new shares from 2s. 3d. to 2s. 4d. 6d. Gunnislake (Clitters), 3s. 6d. sellers. Lochore and Capletrae done at 5 1/2. Marbella done at 7s. 6d. to 8s. 6d. Monkland done at 5s. 6d. to 5s. 8d. Omoo and Cleland done at 5s. 6d. to 5s. 8d. Prince of Wales, 41s. 6d. buyers. Richmond done at 7s. 6d. to 7s. 8d. closing 7 1/2 to 7 3/4. Tharsis, 21 1/2 to 22; new shares 14 1/2 to 14 3/4. West Cumberland Steel and Iron, 14s. 10s. buyers. Young's Paraffin, 7 1/2 to 8. Scottish Wagon done at 10 1/2.

On FRIDAY the market was again quiet. Arncliffe, 7 to 7 1/2. Benhar, 11 1/2 to 11 1/2; new shares, 6 1/2 to 6 3/4. East Caradon, 1 1/2 sellers. Frontino and Bolivia, 35s. buyers. Glasgow Caradon, 3s. 6d. to 3s. 8d.; new shares done from 2s. 3d. to 2s. 4d. 6d. Gunnislake (Clitters), 3s. 6d. sellers. Lochore and Capletrae done at 5 1/2. Marbella done at 7s. 6d. to 8s. 6d. Monkland done at 5s. 6d. to 5s. 8d. Prince of Wales, 41s. 6d. buyers. Richmond done at 7s. 6d. to 7s. 8d. closing 7 1/2 to 7 3/4. Tharsis, 21 1/2 to 22; new shares 14 1/2 to 14 3/4. West Cumberland Steel and Iron, 14s. 10s. buyers. Young's Paraffin, 7 1/2 to 8. Scottish Wagon done at 10 1/2.

On MONDAY very little business was done. Bolckow, Vaughan, A, done at 60 1/2, closing 58 1/2 to 59 1/2. Cardiff and Swansea Coal, 2s. 6d. buyers. Ethw Vale, 13 1/2 to 13 3/4. Exchequer, 1/ 3/ to 1/ 3/4. Frontino and Bolivia, 35s. buyers. Gunnislake (Clitters) done at 3 1/2, closing buyers at that. I. X. L. 3. Killifreth, 1/ 3/ sellers. Pentstemon United, 1/ 3/ sellers. Plympton Lead, 1/ 3/ buyers. Richmond, 7 1/2 to 7 3/4. Tecoma, 1/ 3/ buyers.

On TUESDAY market again inactive. Benhar done at 11 1/2, closing 11 to 11 1/2; new shares, 6 1/2 to 6 3/4. Bolckow, Vaughan, A, 50 to 51. Glasgow Caradon, 1 1/2 buyers. Javali, 1/ 3/ to 1/ 3/4. Lochore and Capletrae, 4 1/2 buyers. Monkland done at 5s. 6d. to 5s. 8d. Omoo and Cleland done at 5s. 6d. to 5s. 8d. closing 5s. 6d. to 5s. 8d. Pannell, 1 1/2 to 1 3/4. Richmond were without business; this week's obituary says: "Return, 84000. Heavy snowstorm. Hauling limited. Mine

There was a large sale, starting at Middlesbrough on Tuesday, but taking all round the coast. The price of pig-iron was not much changed from the quotations of the previous week. Forge-iron, through a scarcity and somewhat enlarged demand, was 61. higher, but though makers sought to increase the rates of No. 3 buyers did not respond, and 52s. to 52s. 6d. was about the prevailing figure, whilst Forge No. 4 averaged about 51s. The holidays have to some extent interfered with business. Demand for cast-iron has been somewhat irregular, but the market has been less regular, whilst many of the finished ironworks have done little for the last fortnight in cases where work has not been given out; they have, however, recom-

The gist of Mr. NEWTON's suggestion is that 4d. per ton should be levied from consumers, the coal merchants being compelled to collect the tax, record its receipt, and account for it to superior collectors, who would call on them at stated intervals to receive the amounts. To levy such a tax on exported coal, and upon coal raised by manufacturers using it, would, of course, be out of the question, so that taking the most liberal view the tax would only be collectable on 50,000,000 tons, and the amount levied would scarcely pay the salaries and travelling expenses of the collectors and administrators of the fund, seeing that those liable to the tax would be distributed in every household in the kingdom. It is a recognised principle of political economy that all taxes are ultimately paid by the consumer, and it is equally well recognised that to endeavour to collect a tax direct from such consumer involves an expense which makes the tax not worth collecting, so that it would obviously be by collection at the pit's mouth alone that any appreciable fund could be hoped for, and this has been declared by the best authorities to be undesirable. Moreover, it must not be forgotten that, owing to the very low death rate among colliers, they are quite as well able to provide for those dependent upon them as any other class of workmen; for a levy of only 1d. per week from the colliers would provide

Date	xxx	xxx	xxx	xxx
Address	xxx	xxx	xxx	xxx

[illegible]

COAL MINES REGULATION ACT, 1872.
EXAMINATION FOR MANAGERS' CERTIFICATES OF COMPETENCY.
DISTRICT UNDER THE CHARGE OF J. P. BAKER, Esq.,
H.M. INSPECTOR OF MINES.

NOTICE IS HEREBY GIVEN, that an **EXAMINATION FOR MANAGERS' CERTIFICATES OF COMPETENCY**, under the above Act, will be held on the 24th day of January, and **CANDIDATES INTENDING TO PRESENT THEMSELVES AT SUCH EXAMINATION** must, on or before the 17th day of January, 1876, notify such intention to the Secretary of the Board of the above-mentioned district, from whom all information as to particulars can be obtained.
By order of the Board,
WM. BLAKEMORE, Secretary,
Heathfield Villa, Wolverhampton.

N.B.—Persons who do not reside within the district are equally eligible for examination with those who do.

TO ENGINEERS, AND OTHERS.
THE DIRECTORS OF THE ROCHESTER, CHATHAM, AND STROOD GAS-LIGHT COMPANY OFFER A PREMIUM OF ONE HUNDRED POUNDS FOR THE BEST DESIGN, with all necessary working drawings, for **UNLOADING COALS FROM STEAM COLLIERIES AND SAILING VESSELS** at their works at ROCHESTER.
Lithographic plans, showing site, and particulars of apparatus required, may be had on application to the Secretary, at the office of the company, 66, High-street, Rochester.
Plans to be delivered on or before February 29th, 1876.
By order, W. SYMS, Secretary.

THE DIRECTORS OF THE GIONA SULPHUR COMPANY (LIMITED) are PREPARED TO RECEIVE TENDERS from PARTIES DESIROUS OF LEASING THEIR MINES IN SICILY.
The property comprises about 300 acres, on which are the well-known mines of Gionia, Gionatella, Tenuta, Tenutella, &c., a few miles from Girgenti.
All tenders must contain the names of two referees, and the lessee or lessees will be required to deposit the sum of £5000 as security for the due performance of the covenants of the lease. Draft lease, and all further particulars may be seen at the offices of the company, 41, Wool Exchange, Coleman street, City, London (where tenders are to be sent).
The directors do not bind themselves to accept the highest or any tender.
Tenders will be sent in not later than the 25th January, to be opened on the 27th January, 1876.

IN THE MATTER OF THE NEW DEVON CONSOLS COPPER MINING COMPANY (LIMITED).
IN LIQUIDATION.
THE CREDITORS OF THE ABOVE-NAMED COMPANY are required, on or before the 18th day of January, 1876, to SEND THEIR NAMES AND ADDRESSES, and the PARTICULARS OF THEIR DEBTS OR CLAIMS, to the undersigned Liquidator of the said company, at the offices of Mr. Wm. Ward, Crosby House, 95, Bishopgate-street Within, London, in default thereof they will be EXCLUDED FROM THE BENEFIT OF ANY DISTRIBUTION made before such debts or claims are proved.
The 18th day of January, 1876, at Three o'clock, at the offices of Mr. Wm. Ward, 95, Bishopgate-street Within, London, is appointed for settling the lists of debts and claims.
JOHN LILLEY, Liquidator.
Dated this 1st day of January, 1876.

LEAD AND BLENDE MINING IN CORNWALL.
THE PROPRIETOR OF THE ABOVE MINES—capable, from discoveries already made, to return 50 to 60 tons monthly—WANT PARTIES OF CAPITAL AND POSITION TO JOIN with £1000 to EXTEND THE WORKINGS through the formation of a PUBLIC COMPANY. Capitalists with the whole sum, and not less than £250 each, treated liberally. No agent need apply. Principals alone treated with. An uncommon opportunity offers for profitable investment for clerical men, retired mercantile or commercial gentlemen. A seat on the board if desired.
Apply, per letter, to "Miner," 24, Guildford-street, Russell Square, London, W.

PRINCE PATRICK LEAD MINING COMPANY (LIMITED).
Notice is hereby given, that the directors have THIS DAY DECLARED A DIVIDEND OF ONE SHILLING AND THREE PENCE PER SHARE, payable, free of income tax, on and after the 19th January instant.
This DIVIDEND, with the INTERIM DIVIDEND paid October last, makes TWO SHILLINGS AND SIX PENCE PER SHARE for the HALF-YEAR, being at the rate of 25 per cent. per annum on the capital of the company.
By order, THOS. HUGHES, Secretary.
10, Seel-street, Liverpool, 3rd January, 1876.

THE BWLCH-Y-GARNEDD SLAB QUARRY.
County of DENBIGH, TO BE LET for a TERM of YEARS, the lease having expired.
This quarry lies within two miles of the Great Western Railway and the Shropshire Union Canal, in the parish of Llansillo.
The valuable deposit of blue flags has been proved and worked. They are suitable for chimneys, pipes, cisterns, pavements, &c.; of lasting quality, large dimensions, and of various thicknesses.
For particulars, apply to WATKIN RICHARDS, Esq., Bank Buildings, Llangollen, Denbighshire, January 4, 1876.

AUSTRALIAN CENTRAL GOLD MINE COMPANY (LIMITED).
Notice is hereby given, that an EXTRAORDINARY GENERAL MEETING of the Shareholders in the Australian Central Gold Mine Company (Limited) will be held at the offices of the company, No. 8, Austin Friars, London, on WEDNESDAY, the 12th day of January, 1876, at One o'clock P.M. precisely, for the purpose of passing a Special Resolution, authorising the Directors to increase the capital of the company, by the issue of 2000 shares of £1 each, to be preferred in respect of dividends on the same terms as the present 10,000 preference shares already issued under the Special Resolution passed on the 6th August, 1875, and confirmed on the 25th August, 1875.
By order, J. H. MURCHISON, London Manager and Secretary.
8, Austin Friars, London, 25th December, 1875.

SUNNYSIDE LEAD MINING COMPANY (LIMITED).
MR. HENRY THOMPSON, of No. 5, FINSBURY CHAMBERS, LONDON WALL, E.C., has SPECIAL BUSINESS in the above Company as BUYER or SELLER. Particulars on application.

SUNNYSIDE LEAD MINES.
The adit level in this property has now been driven nearly 600 fms., and it is more than probable that the great lode traversing this sett will be intersected in the course of a few fathoms further driving.

SUNNYSIDE LEAD MINING COMPANY (LIMITED).
19, Change Alley, Cornhill, E.C.
Notice is hereby given, that a GENERAL MEETING of shareholders in the above Company will be HELD at the London Tavern, Bishopgate-street, E.C., on THURSDAY, the 14th January instant, at Two o'clock, P.M.
G. S. CAUSTON, Secretary.

GUIDE TO INVESTMENTS.
Published monthly, 6s. per annum.
SPARGO'S "GUIDE TO INVESTMENTS" affords information (ample and correct) of all the best paying investments. Capitalists and men of business should consult the "Guide" for reliable and valuable intelligence.
The Next Issue will contain full particulars of the Lead Mines of Durham, with a plan of the county.
Copies can be obtained as above, or from Messrs. Wertheimer and Lea, printers, Finsbury place, E.C.
THOMAS SPARGO, 62, Cornhill, E.C.—Established Twenty-six Years.

MESSRS. TREDINNICK ARE DEALERS IN CONSOLS and all other British Funds, Home, India, and Colonial Stocks and Bonds, Railway Shares, Stocks, and Debentures, of Works, Metropolitan City, with other sound Securities, and Miscellaneous. British and Foreign sound dividend mines, paying 20 to 30 and 40 per cent. on capital. South Canadian pays no less than 60 per cent. Finance, all marketable properties: Coupons and Dividends collected. Several investments are now open to pay 10 to 12½ per cent. interest. One or two promoters required to purchase a mine of unquestionable merits (£200 to £300), a rare opportunity.
43, Bishopgate-street, London, E.C.

THE GREAT ADVERTISING MEDIUM FOR WALES.
THE SOUTH WALES EVENING TELEGRAM (DAILY), and **SOUTH WALES GAZETTE** (WEEKLY), established 1857, the largest and most widely circulated papers in Monmouthshire and South Wales. CHIEF OFFICES—NEWPORT, MON.; and at CARDIFF.

The "Evening Telegram" is published daily, the first edition at Three P.M., the second edition at Five P.M. On Friday, the "Telegram" is combined with the "South Wales Weekly Gazette," and advertisements ordered for not less than six consecutive insertions will be inserted at a uniform charge in both papers.
P.O. and cheques payable to HARRY RUSSELL & SONS, 14, Commercial-street, Newport, Monmouthshire.

HOPKINSON'S CONVERSATIONS ON MINES, between Father and Son. The additions to the work are near 80 pages of useful information, principally questions and answers, with a view to assist applicants intending to pass an examination as mine managers, together with tables, rules of measure, and other information on the moving and propelling power of ventilators, subject which has caused so much controversy.
London: MINING JOURNAL OFFICE, 26, Fleet-street; and to be had of all booksellers.

In the Court of the Vice-Warden of the Stannaries.
Stannaries of Cornwall.

IN THE MATTER OF THE COMPANIES ACTS, 1862 AND 1867, and of the NEW DOLCOATH TIN AND COPPER MINING COMPANY (LIMITED).—TO BE SOLD, under the direction of the Registrar of the said Court, on Friday, the 14th day of January instant, at Eleven o'clock in the forenoon, at the New Dolcoath Tin and Copper Mine, in the parish of Camborne, within the said Stannaries, in Lots (subject to such conditions as shall be then and there produced), the WHOLE of the undermentioned

MINING PLANT, MACHINERY, MATERIALS, AND EFFECTS belonging to the said company, and being within and upon the said mine, and comprising—
ONE 22-in. WHIM ENGINE, 1 14-ft. cage whim, about 200 fms. wire rope, 100 fms. whim chain, 20 fms. 5 in. lift, 5 in. plunger pole, stuffing box and glands, 180 fms. tramroad, 2 new tram wagons, 20 fms. ladder road, 5 whim kibbles, 3 shaft wheels, 3 shafts, wrought iron tube (in the dry), 20 pulleys and stands, 1 new tram wagon, 1 head patent stamps, about 20 fms. tramroad, measuring chain, launders, screw stock, and new screwing plants and plates.

SMITH'S SHOP—1 turning lathe, new and old copper grates, about 1 ton borers, mallets, picks, and smith's tools, new and old rope, tin and candle chests, tallow, candles, powder and powder cans, hilt, a quantity of steel, hoop iron, nails, pulley and blocks, 2 sampling irons, barrows, grinding stone, carpenter's bench, cross-cut and hand saws, carpenter's tools, locker, several sieves, shed, picking table and hatch; a quantity of account house furniture, and other effects in general use in mines.

To inspect the above, apply to the Bailiff in charge at the mine; and for further particulars to Mr. CHARLES WILLIAM CLINTON, the Official Liquidator of the said company, at the Stannaries Court Office, Truro.

HODGE, HOCKIN, AND MARRACK, Truro.
(Solicitors for the said Official Liquidator).

Dated Stannaries Court Office, Truro, January 5th, 1876.

IN LIQUIDATION.
IMPORTANT MINING PROPERTY, near EXETER, DEVON, FOR SALE
BY AUCTION, by Order of His Lordship, Vice-Chancellor MALINS.

IN THE MATTER OF THE COMPANIES ACTS, 1862 AND 1867; AND IN THE MATTER OF THE LIQUIDATION OF THE CORNISH CONSOLIDATED IRON MINES CORPORATION (LIMITED).

MR. W. J. JOHNS (of Truro) is instructed TO SELL, BY AUCTION, on Thursday, 20th January, 1876, at Eleven for Twelve o'clock, on the premises, all those VALUABLE IRON MINES, known as the **HENNOCK MICACEOUS SETT; and the SOUTH EXMOUTH SPATHOSE AND LEAD SETT.**

Situate in the parish of Hennock, near Exeter, Devon, held by the Cornish Consolidated Iron Mines Corporation (Limited), under a grant to them for a term of which nearly 39 years are now unexpired, together with all the ENGINES, PLANT, MACHINERY, and GEAR thereon or thereunto belonging.

The MINES will be OFFERED FOR SALE in One Lot, with the option for the purchaser to take the engines, plant, machinery, and gear, at a valuation, to be made by two valuers or their umpire in the usual way. In the event of the mines not being sold, or of the purchaser declining to take the engines, plant, machinery, and gear, the latter will be offered for sale either in One Lot, or in several lots, as the Auctioneer may deem advisable.

About 1500 TONS of VALUABLE SPATHOSE IRON ORE, on the premises, will be offered FOR SALE in a separate lot.

Particulars, with conditions of sale, may be obtained on and after Tuesday, the 11th of January, from the Auctioneer, at his office, Edward-street, Truro; from the Official Liquidator, FREDERICK WHITNEY, Esq., from the firm of Messrs. Harding, Whitney, and Co., of 5, Old Jewry, London; from Messrs. Smith, Esq., Solicitor, of 33, Norfolk-street, Strand, London; from Mr. J. O. HARRIS, of Gandy-street Chambers, Exeter; or from Messrs. COPE and Co., of 26, Great George-street, Westminster, the Solicitors for the Official Liquidator.

The property may be viewed at any time before the day of sale on application to the Auctioneer.
Dated Edward-street, Truro, January, 1876.

SHARES IN A CELEBRATED MINING PROPERTY
IN CHILLI,
YIELDING LARGE PROFITS, FOR SALE.

TO BE SOLD, BY AUCTION, at the Mart Tokenhouse-yard, in the City of London, on Tuesday, the 23rd day of May, 1876, at Two o'clock precisely, by MESSRS. DRIVER, in One or more Lots, **THREE SHARES** (in Chilli designated Barras) in the CARRIZALILLO MINING COMPANY. The company is divided into 24 shares only.
The CARRIZALILLO COMPANY own the celebrated DESCUBRIDORA MINE, and the three adjoining sets of SAN JUAN, CANCHAS, and SAN FRANCISCO, which are all worked under one administration, and are situate about thirty-three miles from the Port of Pan de Azucar, from whence there is a good road.

The DESCUBRIDORA MINE has been working since 1859, and has yielded large profits. There are two steam-engines at work, one of 20 horse power and one of 8 horse power, for drawing, and there is also a newly-erected powerful engine, with Blake's crusher attached; by the use of the latter the company is enabled to dress and return the large accumulation of low produce ore, which will now give a considerable profit. The mine is in thorough working order, and well stocked with materials, rails, jiggers, crushers, &c.

The adjoining sets of SAN JUAN, CANCHAS, and SAN FRANCISCO were acquired for the purpose of securing the ground around the Descubridora Mine, and they have since been worked on a limited scale. There is also a shop, which supplies the workpeople, and also horses, carts, and mules.

Also the VEGA WASHING AND JIGGING ESTABLISHMENT, with yards, houses, shop, and stores, about nine miles from Descubridora (a tramroad is being laid down from the mine, which will greatly lessen the cost of carriage to the Vega). There are also dwelling houses, bake house, yards, store-rooms, one floor, and mole at Pan de Azucar, with convenient launches for use in loading ships with the ore; and there is also belonging to the company a quinquich establishment, a washing place, situate about eleven miles from Pan de Azucar, on the road to Descubridora, with dwelling house, shop, store, mule yard, water carts, mules, and harness; and in Chanaral Port a dwelling house of eight rooms, and a spacious balcony and store below, with good counting house.

The company also has other houses and sites, and also a complete condensing apparatus, with four boilers, &c.
Two-thirds of Descubridora, San Juan, Canchas, and San Francisco, with some other property of comparatively small value, were sold in 1872 for the aggregate sum of £20,000, and since then profits have been divided much more than sufficient to repay the purchase-money, and there is every prospect of Descubridora continuing to give large profits for a considerable time.

Printed conditions of sale will be shortly ready, and further particulars can be obtained in Chilli from ROBERT PERALES, Esq., Chanaral, Chilli; and in England from MESSRS. DRIVER, the Auctioneers, Whitehall, London; or of S. T. G. DOWNING, Solicitor, Redruth, Cornwall.

FFOY COLLIERY.
TO BE SOLD, BY PUBLIC AUCTION, by Order of the Mortgagees, by MR. THOMAS HAND, at the Steepy Arms Hotel, Llanelli, in the county of Carmarthenshire, in One Lot, on Thursday, the 27th, 1876, at Three o'clock in the afternoon, ALL that LEASEHOLD PROPERTY known by the name of

THE FFOY COLLIERY,
Consisting of a SLANT, with air shafts, underground openings, fitted with pumping and winding ENGINES, gearing, and necessary machinery, estimated to be capable of yielding from 100 to 200 tons of coal per day. Together with certain Branch Railways connecting the colliery with the existing lines in the Gwendraeth Valley. The distance from the colliery to the shipping place and to the Great Western Railway at Barry Port is about eight miles. The coal produced is that known as anthracite, and of excellent quality.

The above property is held under three leases at sleeping rents, the maximum of the aggregate of which amounts to £450 per annum. The royalty on coal and culm is 4d. per ton, 4d. per ton on fire-clay as to a part, and 6d. per ton as to the other part, and 6d. per ton for the ironstone comprised in two of the said leases.

The whole of the above property is situate in the hamlet of Glynn, in the parish of Llanelli, in the county of Carmarthenshire.
Particulars and conditions of sale may be obtained gratis of the Auctioneer, Hall-street, Llanelli; of WILLIAM ROSSIGN, Esq., Mining Engineer, Greenfield House, Llanelli; of MESSRS. SPECKLEY and Co., Solicitors, 1, N.W. Inn, Strand, London, W.C.; of MESSRS. SMITH and PAUL, Solicitors, Truro, Cornwall; and of ROBERT JOHNSON, Esq., Solicitor, Hall-street, Llanelli.

THE HENDON SPELTER WORKS.
TO CAPITALISTS, PROMOTERS OF PUBLIC COMPANIES, & OTHERS.

FOR SALE, in consequence of the Death of the late Senior Partner, John Candlish, M.P., the SPELTER WORKS, situate at Hendon, in the borough of Sunderland, in the county of Durham, carried on under the style of "THE HENDON SPELTER COMPANY."

The works are situate within one mile of the well known docks of the port of Sunderland, and adjoining the Hartlepool Branch of the North Eastern Railway, with which they are connected by high and low level sidings, and thereby placed in communication with all parts of the United Kingdom. Their position, within easy distance of both the ports of Newcastle and Sunderland, is very advantageous for the cheap importation of raw material, as also the forwarding of the manufactured article, either by land or sea.

The ground on which the works are built can be either bought out or bought on a yearly perpetual ground rent, and any quantity under 20 acres can be included in the sale.

Being situated in the midst of the Durham Coal Field field of the best description can be obtained at a cost below almost any other part of the United Kingdom. There are 18 workmen's cottages, which can be bought with the works.
The works contain 24 zinc furnaces, capable of producing 70 tons of metal a week, as also calciners, pottofts, machinery, blacksmiths' and joiners' shops, &c., of sufficient capacity for a much larger number. The works can, therefore, be doubled at a comparatively small cost.

The quality of the metal made at these works is well known, and it, therefore, commands a ready sale at the highest prices.

Attached to the high level sidings are large depots for coal, ore, &c.
The goodwill would, of course, go with the works, and they will be sold subject to all stock being taken at a fair market value.

The purchaser can also have the option of buying the CALCINING WORKS and VALUABLE MINES in SPAIN, thus allowing of the economical and regular supply of the raw material, and saving the mineowners' and merchants' profits.

As the ore from the South of Spain generally comes as ballast for ships laden with export, it has been brought for this company at an average cost of 7s. per ton, sometimes as low as 4s. 6d.

Further particulars can be had on application to the company.

CORNWALL.
SALE OF VERY VALUABLE MINERAL AND OTHER PROPERTY,
Including PART of the DUES from WEST CHIVERTON, &c.
AN AUCTION WILL BE HELD, BY MR. THOMAS R. OLVER, at the Royal Hotel, Truro, on the 12th January, 1876, at Three o'clock in the afternoon, for SELLING, subject to the conditions to be produced, the

LIFE INTEREST OF A GENTLEMAN,
Aged about 28 years, in various properties, embracing, amongst other lots—
LOT 1.—ONE-SIXTH of the MINES and MINERALS under the Manor of Ventonings, in Perranzabuloe, Cornwall. The celebrated West Chiverton Mine (from which the owner of the one-sixth, now offered for sale, has received on the average upwards of £500 per annum as dues) is in Ventonings, as are also the mines formerly known as Great South Chiverton, Wentworth Consols, and part of Chiverton Moor.

LOT 4.—ONE SIXTH of certain MINERALS in the Manor of Goonearle, in St. Agnes, Cornwall. The sets now or formerly known as North Trekerby, Wheel Road, East Downs, Wheel Briton, and others are situate in Goonearle.
LOT 5 includes portions of the MINERALS in Chilly and Chytdoden, Trevaunance, Bolster, Trewartha, and Towan, in St. Agnes. The sets now or formerly known as St. Agnes Consols, Wheel Charlotte, Wheel Towan, &c., are either wholly or in part within the above estates.

For further particulars, application should be made to MESSRS. OLVER and SONS, Auctioneers and Land Valuers, Falmouth; or to MESSRS. STONE, KING, and KING, Solicitors, Bath; MESSRS. PETGRAVE and HODGKINSON, Solicitors, Bath; Mr. KILBERT BARTRUM, Solicitor, Bath; or at the offices of S. T. G. DOWNING, Solicitor, Redruth.

Dated November 22nd, 1875.

TIN AND COPPER MINE, MACHINERY, PLANT, &c., FOR SALE,
BY PRIVATE BARGAIN.

THE SUBSCRIBER IS PREPARED TO RECEIVE OFFERS for the PURCHASE, in One Lot, of the LEASES, PLANT, MACHINERY, BUILDINGS, STOCK IN TRADE, and others of the

EAST DARTMOOR TIN AND COPPER MINING COMPANY (LIMITED), ASHBURTON, DEVONSHIRE (commonly known as the Druid Mine), with immediate entry.

The machinery consists of a 56-in. cylinder PUMPING ENGINE, in first-class order; THREE BOILERS, of 10 tons each; 155 fms. 13-in. pit-work, water-wheel, grinder, balance, capstan and chain, wire ropes, rails, windlass, rods, plates, &c.

The leases are held on favourable terms.
A detailed inventory, with particulars of the leases, and all other necessary information will be supplied, on application, by J. THOMSON DUNCAN, Liquidator.

146, Buchanan-street, Glasgow, January, 1876.

TO CAPITALISTS OR PROMOTERS DESIRING TO
MAKE MONEY.

TO BE SOLD, A COLLIERY ROYALTY IN NORTH WALES,
close to rail or shipping port; several shafts partially sunk; coal fully proved of FOUR SEAMS of good HOUSE and STEAM COALS, in an area of upwards of 400 acres of surface. It adjoins the West Mostyn Coal Field, just successfully launched, where under seams (including Cannel) have been proved in addition to the above; so that eminent engineers state that the available coal in this royalty may be 55 feet thick.

Present holder will arrange to sell the entire to an individual or company for what it has cost him, dividing all profit made above, which, even in a normal state of the coal trade, must be large. Certain and safe surveys by eminent Staffordshire and Welsh engineers have already been made.

Address, "Nid Desperandum," care of Mr. Watson, 15, Fenwick-street, Liverpool.

MINERALS.

COAL FOR SALE, AND LEASE, BY PRIVATE TREATY,
in close proximity to the town of NOTTINGHAM, from which a large READY MONEY TRADE may be expected. Principals or their authorised agents only treated with.

Apply, by letter only in the first instance, to Mr. G. H. WRIGHT, Mining Engineer, 22, Low Pavement, Nottingham.

SULPHATE OF BARYTES FOR SALE.
Fine powdered, beautifully white; also in the Rock or Crude State, free from Lime and Metallic Oxide.

Samples on application to—
RUTHWAITH BARYTES MINING COMPANY,
Nov. 17, 1875. WHITEHAVEN.

FOR SALE:—

ONE 60 ft. OVERSHOT WATER WHEEL, 2 ft. 6 in. breast, iron rings, centre pieces, shaft, wooden arms, buckets, backing.

ONE 12 ft. by 2 ft. 6 in. ditto ditto

ONE 12 head SET OF STAMPS, complete.

ONE LARGE PUMP CRANK, with four pin holes.

ONE 13 ft. IRON BOB.

EIGHT LARGE GEAR WHEELS.

ONE 4 TON CRUSHER, complete.

A lot of FUME RODS, JOINTS, TRAM WAGONS, PUMPS, &c., &c.

The whole of the above has been little used; is in good condition; will be sold cheap, together or separate.

PORTABLE ENGINES, PUMPS, SAW TABLES, always on sale or hire.

Apply to—
POLYBLANK AND CO.,
ENGINEERS AND BOILER MAKERS,
NEWTON ABBOT AND DARTMOUTH.

SINKING, WINDING COAL, &c.

FOR SALE, A 14-horse power PORTABLE STEAM ENGINE, with two cylinders, link motion reversing gear, drum 5 ft. diameter, with gearing to wind and pump, ready for delivery.

Also, a 35 horse power PORTABLE ENGINE, a 9 horse and an 18 horse power VERTICAL, all with link motion reversing gear—suitable for mining operations.

BARROWS AND STEWART ENGINEERS, HANBURY.

CONDENSING AND NON-CONDENSING HORIZONTAL
STEAM ENGINES, of the highest class, at low prices.

PUMPING AND WINDING ENGINES. First class references.

ENGINEERS' TOOLS of all kinds, unrivalled for arrangement and general usefulness, at low prices. Inspection invited.

POLLOCK AND MACNAB,
BRITANNIA IRONWORKS, HYDE, NEAR MANCHESTER.

LOCOMOTIVE TANK ENGINES

FOR MAIN LINE TRAFFIC, SHORT LINES COLLIERIES, CONTRACTORS, IRONWORKS, MANUFACTURERS, &c., from a superior specification, equal to their first-class Railway Engines, and special adapted to sharp curves and heavy gradients, may always be had at a short notice from—

MESSRS. BLACK, HAWTHORN, AND CO.,
LOCOMOTIVE, MARINE, AND STATIONARY ENGINE WORKS,
GATESHEAD ON TYNE.

ENGLISH TIN, AND HOW TO COMPLETE SUCCESSFULLY
WITH AUSTRALIA.

USE DYNAMITE.
Invaluable for BLASTING the HARDEST and WETTEST ROCK; SAFER to USE; and EFFECTS a GREAT SAVING of time and money.

Pamphlets free by post. An experienced man sent underground to give instructions when necessary, free of charge.

Apply.—STEPHEN WILLIAMS, CAMBORN.

CO-OPERATIVE CREDIT BANK,
MANHON HOUSE CHAMBERS,
11, QUEEN VICTORIA STREET, N.O.

First issue of capital: £500,000, in subscriptions of £10 and upwards.

Interest in lieu of dividend 18 per cent. per annum, paid monthly.

Current accounts opened, and 5 per cent. interest allowed on the minimum monthly balances.

CHEQUE BOOKS SUPPLIED.

The Bank transacts every description of sound financial business. Book-keeping in the hands of the subscribers, and a quarterly balance sheet issued by auditors appointed by them, independent of the management.

For particulars apply to—
H. B. OAKLEY, Manager.

ANNUAL SPECIAL DOUBLE NUMBER.

"LONDON IRON TRADE EXCHANGE."

THE SPECIAL NUMBER will be published on the 8th of January, and will contain 30 to 40 beautiful engravings of the principal Ironworks in England, including the Earl of Dudley's, Earl Granville's, the Bowling Ironworks, the Bradens Iron Works (Hunt and Sons), the Kirkstall Forge Ironworks, Robert Heath and Son, W. Millington and Co., Summer Hill, and others. Also, Authentic Lists of all the Ironworks in the United Kingdom in 1860, seventy-five years since, with the price of iron for every consecutive year. Mr. Griffiths's Annual Review of the Iron Trade for 1875, with a particular account of all the failures of the year 1875. All the leading Annual Trade Circulars of other brokers and merchants, with valuable Statistics and Information connected with the Iron Trade. This number will be double.

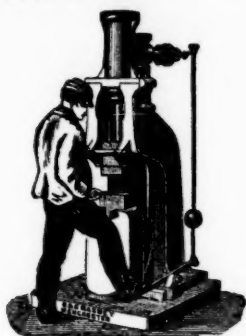
Orders should be sent to Messrs. SMITH and SON, Railway News Agents, Strand, promptly; or to Mr. H. GRIFFITHS, at the publishing office of the paper, 31, Cannon-street, E.C., London. If to the latter, send 1s. 9½d. postage stamps.

LA HOUILLE (Weekly Journal) represents the IRON and COAL TRADES OF FRANCE. Advertisements referring thereto, and subscriptions, 2s. per annum, post paid, received by the London Agents, EDWARD CASPER and Co., 40, Finsbury Circus, E.C.

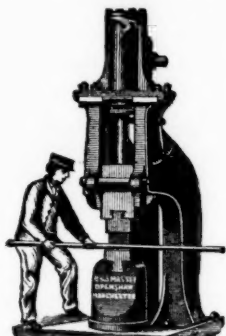
B. & S. MASSEY, OPENSHAW, MANCHESTER.

PRIZE MEDALS Awarded:—Paris, 1867; Havre, 1868; Highland Society, 1870; Liverpool, 1871; Moscow, 1872; Vienna, 1873; Scientific Industry Society, 1874; Leeds, 1875.

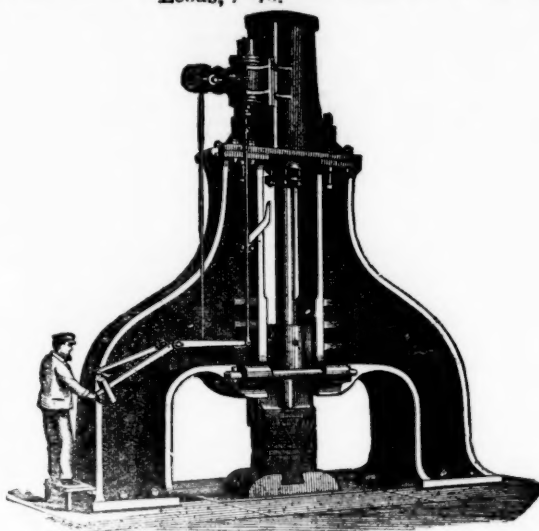
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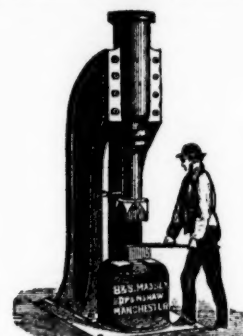
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Special Steam Stamp.



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From 60 to 100 Steam Hammers and Steam Stamps may usually be seen in construction at the Works.

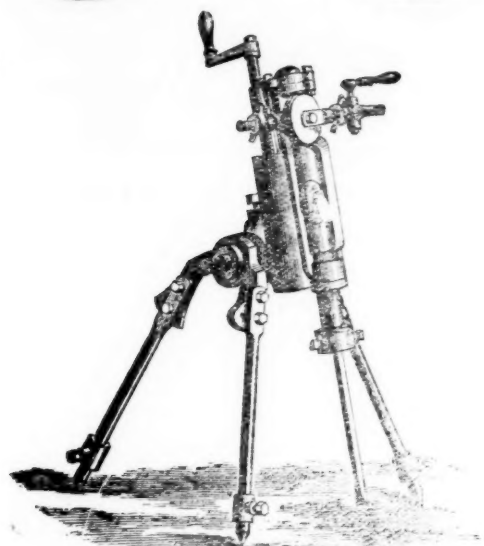
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STEAM HAMMERS for Engineers, Machinists, Ship-builders, Steel Tilters, Millwrights, Copper-smiths, Railway Carriage and Wagon Builders, Colliery Proprietors, Ship Smiths, Bolt Makers, Cutlers, File Makers, Spindle and Flyer Makers, Spade Makers, Locomotive and other Wheel Makers, &c.; also for Use in Repairing Smithies of Mills and Works of all kinds for straightening Bars, bending Cranks, breaking Pig-iron, &c.

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THIS DRILL WILL BORE THE HARDEST GRANITE with great rapidity, without getting out of order.

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INGOTS, Nos. I or II, suitable for Pumps, Pinions, Ornamental Castings, &c. £130 per ton
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Special Phosphor Bronze Bearing Metal £120 per ton
CASTINGS, Wire Ropes, Tuyeres, &c., of all descriptions executed at the shortest notice.

MINING PROSPECTUSES AND ANNOUNCEMENTS OF PUBLIC COMPANIES should be inserted in the BARNSTAPLE TIMES published every Tuesday, and in the DEVON POST, published every Saturday, as these papers circulate largely throughout Devon and Cornwall, where many thousands of investors reside. Legal and Public Companies' advertisements, 6d. a line each insertion; Trade and Auctions, 4d. a line; Wanted, &c., 2d. words, 1s. Published by J. B. JONES, Bouthport-street, Barnstaple, Devon, to whom all orders by post or telegraph should be sent.

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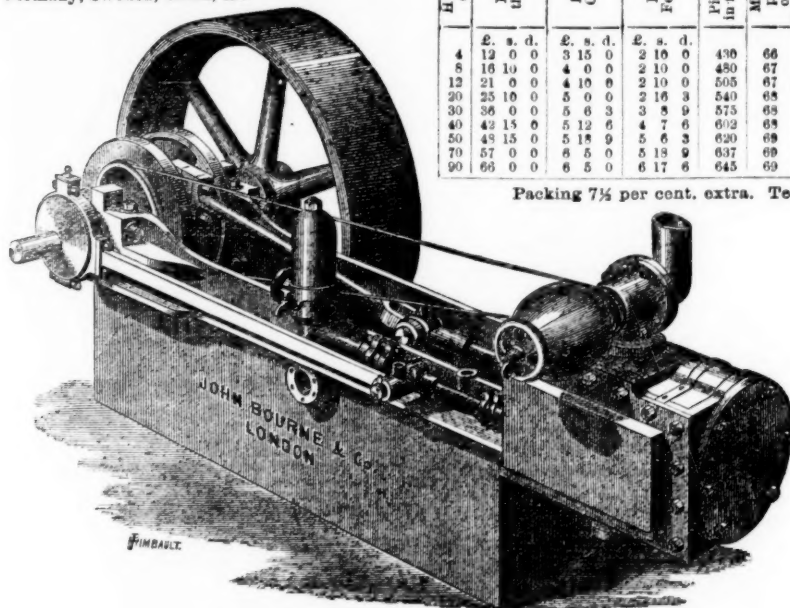
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These engines have just been awarded a Silver Medal at the Manchester Exhibition, and about 1800 H.P. of them have been sold in a few months to North and South America, New Zealand, Australia, the Cape, Russia, Spain, Portugal, France, Germany, Sweden, China, &c.

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4	£ 12 0 0	£ 3 15 0	£ 2 10 0	430	66	27 17 0	10 10 0
8	£ 16 10 0	£ 4 0 0	£ 2 10 0	480	67	35 8 6	10 18 6
12	£ 21 0 0	£ 4 10 0	£ 2 10 0	505	67	40 3 0	11 18 0
20	£ 25 10 0	£ 5 0 0	£ 2 10 0	540	68	47 18 0	13 3 0
30	£ 36 0 0	£ 6 3 3	£ 3 8 9	575	68	57 19 4	15 13 0
40	£ 43 15 0	£ 7 12 6	£ 4 7 6	602	68	70 9 0	17 11 0
50	£ 49 15 0	£ 8 18 9	£ 5 6 3	620	69	84 4 0	18 2 6
70	£ 57 0 0	£ 9 5 0	£ 5 13 9	637	69	Two boilers.	
90	£ 66 0 0	£ 10 6 0	£ 6 17 6	645	69	Two boilers.	

Packing 7½ per cent. extra. Terms, Cash.



From **ANDREW LAMB, Esq.,** Superintending Engineer, P. and O. Steam Co.

Peninsular and Oriental Steam Navigation Company, Southampton, March, 1875.

I have carefully examined your Patented High-Pressure High-Speed Steam-Engine. Knowing as I do how many improvements in the steam-engine you have inaugurated during the last forty years, which have been silently adopted and are now in general use, it does not surprise me that you have again made a happy hit, and brought out an engine which exactly meets one of the most pressing wants of the day. The speed and pressure of your engine are greater than is usual in other engines; but with a due proportion of rubbing surface, nothing in the way of undue wear is to be apprehended from the speed, and boilers and engines can easily be made strong enough to bear almost any pressure with safety. The indicator diagrams are very good, and they show that though the engine is small it generates the power. Your invention of balancing the momentum of the moving parts, already adopted in the best engines for steam navigation, enables engines to be run at almost any speed without inconvenience, if well constructed in other respects; and in your present engine you have embodied the best engineering knowledge of the age, with the addition of several features of originality and importance. While, then, the disadvantages of your engine are *nil*, its advantages are great and manifest. A high pressure and high speed render possible large expansion, with a great saving both in coal and water. Then the motion is more equable than in common engines, and the weight of machinery and the space occupied by it are small. The most remarkable feature, however, is the wonderful reduction of first cost which your system permits; and people will now have engines who before thought them quite beyond their reach. Their production, as I understand, you have reduced to a manufacture. To sum up the whole in a few words, you have, in my opinion, brought out a machine long wanted, and likely to produce a revolution in that class of engine, as it can be adapted for almost any purpose.

To John Bourne, Esq., C.E., Author of "A Treatise on the Steam-Engine," "A Catechism of the Steam-Engine," &c., &c.

Balanced Compounds for Pumping and Winding, for Mills, &c., equally moderate.
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The advantages possessed by these machines over others are—

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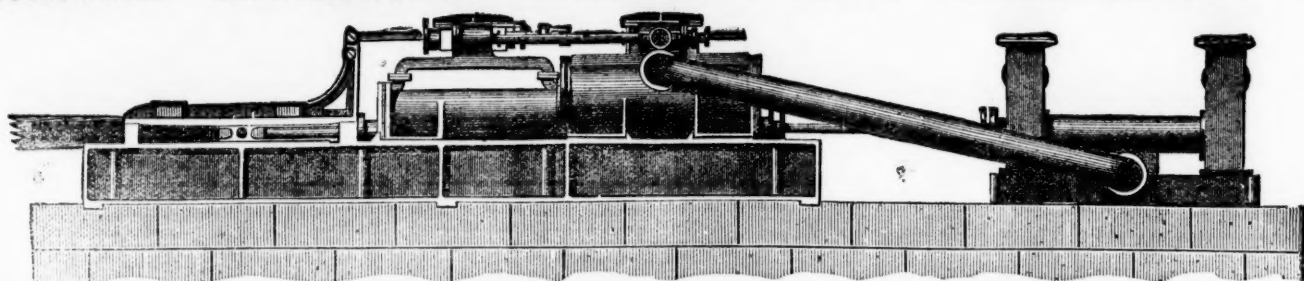
N.B.—Any person or persons infringing on the patent or manufacture of these machines, or any part thereof, will be prosecuted under the Act.

Estimates given for all classes of Mining Machinery, &c., for home and foreign supply.

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Also, Single-cylinder Condensing Differential PUMPING ENGINES; Steam Pumps, of various kinds; Hydraulic Pumps, for dip workings; Winding Engines; Compound Rotative Engines; the Separate Condenser; High and Low Pressure Steam Boilers, &c.

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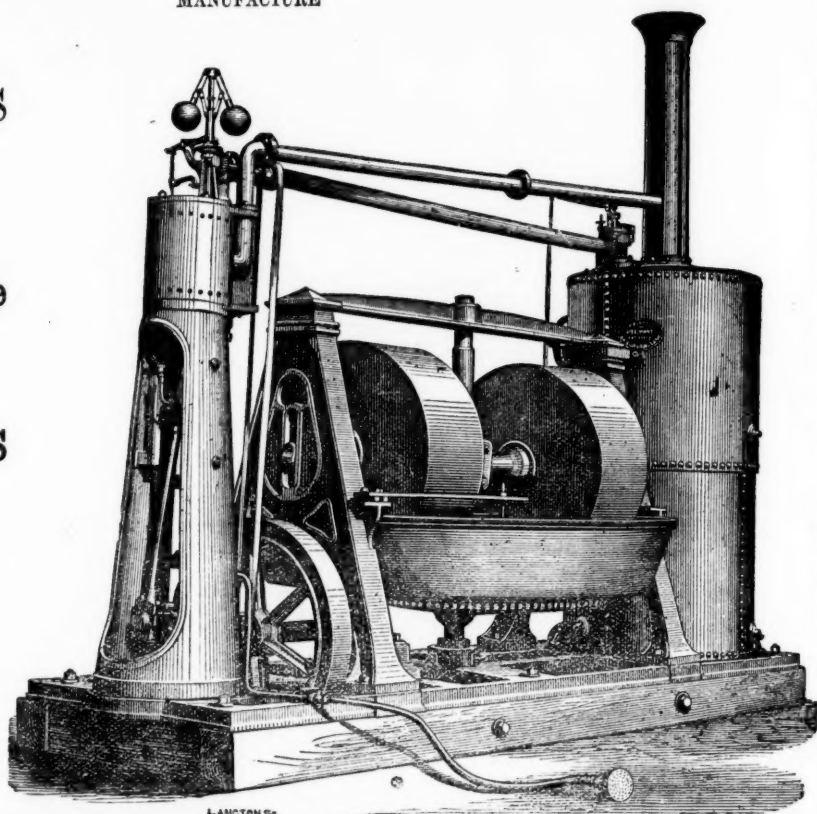
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Winding,
Pumping, and Ore
crushing.

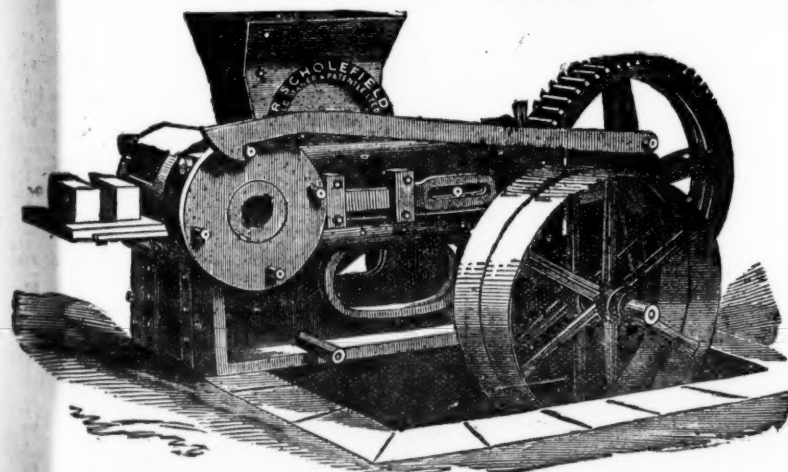
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with or without
BOILERS,
for Grinding
Cinders, Sand,
Mortar, &c.



LANCOSTON.

R. SCHOLEFIELD'S LATEST PATENT BRICK-MAKING MACHINE.

PATENTED 1873.



R. S. begs to call the attention of all Colliery Owners in particular to his PATENT SEMI-DRY BRICK MACHINE, and the economical method of making bricks by his patent machinery from the refuse that is taken from the pits during the process of coal-getting, which, instead of storing at the pit's mouth (and making acres of valuable land useless), is at once made into bricks, at a very small cost, by R. S.'s Patent Brick-making Machinery. If the material is got from the pit hill, the following is about the cost of

production, and the hands required to make 10,000 pressed bricks per day:—

2 men digging, each 4s. per day	£0 8 0
1 man grinding, 4s. 6d. per day	0 4 6
1 boy taking off bricks from machine, and placing them in barrow ready for the kiln, 2s. per day	0 2 0
1 boy greasing, 1s. 6d. per day	0 1 6
1 engine-man, 6s. per day	0 5 0
1 man wheeling bricks from machine to kiln, 4s. per day	0 4 0

Total cost of making 10,000 pressed bricks £1 5 0, or 2s. 6d. per 1000.

(SETTING AND BURNING SAME PRICE AS HAND-MADE BRICKS.)

N.B.—Where the material can be used as it comes from the pit, the cost will be reduced in digging.

As the above Machinery is particularly adapted for the using up of shale, bind, &c., it will be to the advantage of all Colliery Owners to adopt the use of the said Brick making Machinery.

THE MACHINES CAN BE SEEN IN OPERATION AT THE WORKS OF THE SOLE MAKER AND PATENTEE DAILY.
SCHOLEFIELD'S ENGINEERING & PATENT BRICK MACHINE WORKS,
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THE "CHAMPION" ROCK BORER For Tunnels, Mines, Quarries AND OTHER WORKS.



The "CHAMPION" Rock Borer has been designed after years of experience of other Rock Drills; it surpasses them in their good qualities, and avoids their imperfections, and while being of the very best make and material, it is absolutely the cheapest in the market. Intending purchasers can satisfy themselves of the excellence of this Rock Borer by seeing it in actual operation.

Improved Air-Compressors, &c.
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SPECIALITIES.
PATENT PORTABLE POWER ROCK DRILLS.
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AIR COMPRESSORS & STEAM ENGINES.

MINERS' PICKS, with interchangeable Steel Points.
Semi-portable and fixed Winding, Hauling, and Pumping Engines.
HYDRAULIC WINDING ENGINES.

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MANUFACTURERS OF
CAST STEEL for PUNCHES, TAPS, and DIES
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CAST STEEL PISTON RODS, CRANK PINS, CON
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AXLES, SHAFTS and
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BLISTER STEEL, T. TURTON
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GERMAN STEEL, WM. GREAVES & SON
Locomotive Engine, Railway Carriage and Wagen
Springs and Buffers.
SHEAF WORKS AND SPRING WORKS, SHEFFIELD.
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Where the largest stock of steel, files, tools, &c., may be selected from

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PATENTERS.
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MANUFACTURERS OF EVERY DESCRIPTION OF
IMPROVED
PATENT FLAT AND ROUND WIRE ROPES
from the very best quality of charcoal iron and steel wire.
PATENT FLAT AND ROUND HEMP ROPES,
SHIPS' RIGGING, SIGNAL AND FENCING STRAND, LIGHTNING CON
DUCTORS, STEAM PLOUGH ROPES (made from Webster and Horsfall's
patent steel wire), HEMP, FLAX, ENGINE YARN, COTTON WASTE
TARPAULING, OIL SHEETS, BRATTICE CLOTHS, &c.
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#100	Abbot, John, and Co. [L.]	475 0 0	4 1/2
15	Albion Steel and Wire Co. [L.]	12 10 0	13 1/2
100	Asmanti Colliery Co. [L.]	5 0 0	1 1/2
100	Asbury Co. [L.]	90 0 0	3 1/2
10	Benhar Coal [L.]	16 0 0	8 1/2
50	Bilbao Iron Ore Co. [L.]	10 0 0	1
10	Bilson & Crump Meadow Coll. Co. [L.]	50 0 0	7 1/2
5	Blaen Cwmbach Coal Co. [L.]	110 0 0	1 1/2
10	Blenavon Iron and Steel Co. [L.]	50 0 0	3 1/2
100	Bolton, Vaughan, and Co. [L.]	35 0 0	13 1/2
60	Bowling Iron Co. [L.]	50 0 0	13 1/2
50	Britannia Ironworks [L.]	25 0 0	13 1/2
60	Brown, Bailey, and Dixon [L.]	40 0 0	25 1/2
100	Brown, John, and Co. [L.]	70 0 0	6 1/2
5	Cakemore Colliery Co. [L.]	5 0 0	par
100	Cannell and Co. [L.]	80 0 0	0 1/2
30	Cannock and Huntington Coal [L.]	2 0 0	0 1/2
10	Cardiff & Swansea St. Coal Co. [L.]	8 0 0	0 1/2
10	Cardigan Steel and Wire Co. [L.]	7 10 0	7 1/2
10	Central Swedish Iron and Steel [L.]	10 0 0	7 1/2
5	Chapel House Colliery	5 0 0	1 1/2
50	Charlton Iron Co. [L.]	40 0 0	3 1/2
10	Chatterley Iron Co. [L.]	40 0 0	17 1/2
10	Chilling Iron Co. [L.]	1 0 0	5 1/2
1	Clee Hill Colliery Co. [L.]	1 0 0	13 1/2
10	Consett Iron Co. [L.]	7 10 0	1 1/2
1	Consett Spanish Ore [L.]	1 0 0	1 1/2
50	Cooke, William, and Co. [L.]	30 0 0	2 1/2
20	Darlington Iron Co. [L.]	10 0 0	6 1/2
50	Davies Brothers [L.]	22 10 0	1 1/2
5	Diamond Fuel Co. [L.]	4 10 0	1 1/2
32	Ebbw Vale Co. [L.]	29 0 0	16 1/2
10	General Mining Ass. [L.] (returned)	9 0 0	4 1/2
2	Great Western Coal Co. [L.]	17 0 0	7 1/2
2	Gwynegwillim Colliery Co. [L.]	2 0 0	0 1/2
15	Hopkins, Glikes, and Co. [L.]	10 0 0	0 1/2
10	Ilfon Rhyn Colliery Co. [L.]	10 0 0	9 1/2
50	Knowles, Andrew, and Sons [L.]	17 0 0	7 1/2
10	Llay Hall Coal, Iron, & Firebrick [L.]	10 0 0	7 1/2
10	Littleclun Woodsall Coll. Co. [L.]	5 0 0	0 1/2
50	Llyfni, Ogwen, & Tondra Co. [L.]	50 0 0	2 1/2
10	Lydney and Wiston Iron Ore [L.]	7 5 0	8 1/2
10	Marbella Iron Ore Co. [L.]	10 0 0	6 1/2
5	Mersey Steel and Iron Co. [L.]	5 0 0	5 1/2
10	Midland Iron Co. [L.]	5 0 0	5 1/2
5	Mold Argoe Colliery Co. [L.]	5 0 0	3 1/2
10	Monkland Iron and Coal Co. [L.]	10 0 0	7 1/2
4	Mwydy Iron Ore [L.]	3 10 0	2 1/2
100	Nant-y-Glo and Blaiana (8 p.c. pref.)	100 0 0	32 1/2
1	Nerbudda Coal and Iron	0 8 0	par
20	Newburian Iron Exports [L.] Pref.	20 0 0	16 1/2
10	Newport Abercrom Coal [L.]	8 0 0	0 1/2
10	Northampton Coal, Iron & Wagon [L.]	8 0 0	0 1/2
10	Northfield Iron Co. [L.]	8 0 0	3 1/2
1	Norton Green Coal Co. [L.]	8 0 0	3 1/2
35	Palmer's Shipbuilding and Iron [L.]	25 0 0	14 1/2
100	Parkgate Iron Co. [L.]	65 0 0	13 1/2
20	Pent and Bolt Co. [L.]	14 0 0	7 1/2
20	Pent and Bolt Co. [L.]	14 0 0	7 1/2
10	Pellack Coal and Iron	15 0 0	5 1/2
50	Phoenix Bessemer Co. [L.]	40 0 0	35 1/2
80	Rhymney Iron Co. [L.]	80 0 0	14 1/2
100	Samuel Fox and Co. [L.]	80 0 0	34 1/2
100	Sandwell Park Colliery Co. [L.]	100 0 0	34 1/2
50	Ditto New	10 0 0	0 1/2
50	Shotts Iron Co. [L.]	50 0 0	14 1/2

08	Sheepbridge Iron and Coal Co. [L.]	55	0	0	21
08	Silkestone & Dodsworth Cl. & Iron [L.]	22	0	0	
5	Silkestone Fall Colliery Co. [L.]	5	0	0	
20	Skerne Ironworks [L.]	30	0	0	
50	Somorrostro Iron Co. [L.]	50	0	0	
200	South Wales Coal Co. [L.]	17	0	0	
100	Staveley Iron and Coal Co. [L.]	60	0	0	44
100	Ditto ditto	10	0	0	8
20	South Cleveland Ironworks [L.]	20	0	0	
10	Swansea Valley Steam Coll. Co. [L.]	5	0	0	
100	Thames Iron Company	100	0	0	
50	Tredegar Iron and Coal Co. [L.]	12	0	0	5/8
25	Ditto B. shares	25	0	0	
20	Ulverston Mining Co. [L.]	10	0	0	1 1/2
1	United Bituminous Collieries [L.]	1	0	0	
10	Vancouver Coal [L.]	6	0	0	
100	Vickers, Sons, and Co. [L.]	100	0	0	1
00	Welsh Ironworks Co. [L.]	50	0	0	
25	W. Cumberland L. and Steel [L.]	20	0	0	7
20	West Mostyn Coal Co. [L.] (12 p.p. pref.)	5	0	0	
5	West Swansea Colliery Co. [L.]	5	0	0	
10	Whitehaven Iron Co. [L.]	5	0	0	
00	Wigan and Whiston Coal Co. [L.]	10	0	0	
00	Wigan Coal and Iron Co. [L.]	70	0	0	
		75	0	0	

WAGON COMPANIES.					
10	Birmingham Wagon Co. [L.]	10	0	0	21
20	British Wagon Co. [L.]	10	0	0	4
20	Yorkfield Wagon Co. [L.]	15	0	0	3 1/2
10	Sheshshire Wagon Co. [L.]	10	0	0	5

TELEGRAPH COMPANIES.					
"Anglo-American	100	0	0	55	
Co. Br. (U.S.)					

United States Savings	10	0	0	5	—
Eastern United States Cable	20	0	0	0	—
0 Eastern	20	0	0	0	—
0 East. Exten., Australia and China	18	0	0	0	8 1/2
0 Great Northern	10	0	0	0	7 1/2
0 Indo-European	25	0	0	0	8 1/2
0 Mediterranean Extension	10	0	0	0	22 1/2
0 Renters	8	0	0	0	10 1/2
1 Submarine	100	0	0	0	105 1/2
0 West India and Panama	10	0	0	0	13 1/2
0 Western and Brazilian	20	0	0	0	9 1/2
0 Western Union, 7 per cent. Mort. Bonds \$1000	100	0	0	0	108 1/2
MISCELLANEOUS.					
Atlantic and Great Western Leased					
Lines, Rental Trust	100	0	0	0	43 1/2
Austral. Mort. Land and Finance [L.]	5	0	0	0	3 1/2
Australian Agricultural	21	10	0	0	—
Avonide Engine [L.]	7	0	0	0	3
Baltimore and Ohio, 6 per cent.	100	0	0	0	100 1/2
Cent. of New Jersey Con. Mort.	100	0	0	0	90 1/2
Cent. Pacific of Calif., 1st Mort. 6 p.c.	100	0	0	0	95 1/2
City of London Real Property [L.]	12	0	0	0	13 1/2
Copper Miners of Eng. 7 1/2 p.c. pref.	25	0	0	0	—
Credit Foncier [L.]	5	0	0	0	13 1/2
Ditto New	5	0	0	0	13 1/2
Diamond Rock Boring	4	0	0	0	13 1/2
English and Foreign Credit	8	0	0	0	13 1/2
Foster, Porter, and Co. [L.]	10	10	0	0	—
Genl. Phos. & Chem. Works Co. [L.]	5	0	0	0	—
Glaesdale Whimstone Quarry	1	0	0	0	1
Hudson's Bay Company	17	0	0	0	10 1/2
Huntington Copper and Sul. Co.	5	0	0	0	—
Illinois Central, \$100 shares	100	0	0	0	91 1/2
Illinois & St. Louis Bridge, 1st Mort.	100	0	0	0	90 1/2
Ditto, 2nd Mort., 7 per cent.	100	0	0	0	85 1/2
Illinois Cent. Sinking Fund, 5 p. cent.	100	0	0	0	98 1/2
Ditto, 6 per cent.	100	0	0	0	108 1/2
Imperial Credit [L.]	7	10	0	0	—
Ditto, Surplus Certificate	—	—	—	—	7 1/2
High Val. Con. Mort., 5 p. cent.	100	0	0	0	98 1/2
Miner's Safe [L.]	10	0	0	0	11 1/2
National Discount [L.]	5	0	0	0	8 1/2
Nat. Rail. Con. Mort., 6 per cent.	100	0	0	0	92 1/2
P. & C. Gunpowder Company	5	0	0	0	5 1/2
Pennsylv. Gen. Mort. 6 p. cent., 1910	100	0	0	0	105 1/2
Ditto, Con. Sink. Fund, 6 p. ct., 1905	100	0	0	0	98 1/2
Pennsylv. and Oriental Steam	60	0	0	0	41 1/2
Suez Canal shares	10	0	0	0	8 1/2

Clifton Construc. & Maint. Co. (L.)	20	0	00	30
Ditto, Second Bonus Three per Centa	12	0	00	25 1/2
Pharist Sulphur and Copper Co.	20	0	00	24
Union Pacific Land Grant, 1st Mort.	100	0	00	2 1/2
Union Pacific Railway, 1st Mort.	100	0	00	92

nide; c, coal; c, copper; g, gold; l, lead; s, silver; d, diamond;
 s-s, silver-lead; t, tin; z, zinc.

Limited Liability Companies: I quoted on the Stock Exchange
 I have paid dividends.

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